

Perceived Parental Monitoring, Adolescent Disclosure, and Adolescent Depressive
Symptoms: A Longitudinal Examination

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Abstract

Parental monitoring has long been stressed as an important parenting practice in reducing adolescent susceptibility to depression. An extensive review by Stattin and Kerr (2000), however, revealed that researchers had confounded perceptions of parental monitoring (i.e., parental solicitation and control) with parental knowledge, and neglected to consider the role of adolescent willingness to disclose. In the present study, adolescents ($N = 1995$; 51.3% female) were surveyed at two time points (grade 10 and 11). To disentangle the role of perceived parenting, three central issues were addressed. First, the present study examined whether parental knowledge, adolescent disclosure, and parental monitoring (i.e., parental solicitation and control) in grade 10 predicted adolescent depression in grade 11. Second, the predictive value of adolescent depression in grade 10 on parental knowledge, adolescent disclosure, parental solicitation and parental control in grade 11 was considered. Lastly, associations among parental knowledge, adolescent disclosure, parental solicitation and parental control were examined over time. Findings indicated that higher levels of parental knowledge were associated with subsequent lower levels of depressive symptoms, and that depressive symptoms predicted lower levels of parental knowledge over time. Both adolescent willingness to disclose and parental control predicted higher parental knowledge. These findings underscore the role of adolescent and perceived parent contributions to parental knowledge, and highlight the importance of perceived parental knowledge in predicting reduced adolescent susceptibility to depression.

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Perceived Parental Monitoring, Adolescent Disclosure, and Adolescent Depressive Symptoms: A Longitudinal Examination

Overview:

Depression is a widespread (Muris, Schmidt, Lambrichs, & Meesters, 2001) and serious problem among adolescents (Young, Berenson, Cohen, & Garcia, 2005). Estimates of prevalence suggest 15-20% of youth experience depression during adolescence (Hankin, Abramson, Moffitt, Angell, Silva & McGee, 1998; Lewinsohn, Duncan, Stanton & Hautziner, 1986; Lewinsohn, Hops, Robers, Seeley & Andrews, 1993) and adolescent depression is associated with less positive adjustment in adulthood (Devine, Kempton, & Forehand, 1994), as well as greater risk for suicide (Hovanesian, Isakov, & Cervellione, 2009), lower levels of self-esteem and self-efficacy (Muris et al., 2001; Kerr & Stattin, 2000), externalizing behavior engagement (Fleming, Mason, Mazza, Abbott & Catalano, 2008; Needham, 2007), and poor academic outcomes (Jacobson & Crockett, 2000).

Throughout the past several decades, parental monitoring has been regarded by researchers as one way parents can reduce adolescent susceptibility to depression (Frojd, Kaltiala-Heino, & Rimpelleta, 2007; Gil-Rivas, Greenberger, Chen, Lopez-Lena., 2003; Jacobson & Crockett, 2000; Kim & Ge, 2000; Klein & Forehand, 2000; Sagrestano, Holmbeck, Pakioff & Fendrich, 2003; Steinberg, Mounts, Lamborn, Dornbusch, 1991; Yu, Clemens, Yang, Li, & Stanton, 2006). In the present thesis, I review the existing literature on the importance of parental monitoring as a deterrent of adolescent depression, and consider the strengths and limitations of previous research in this area. I identify criticisms by Stattin and Kerr (2000) of the parental monitoring construct that suggest parental monitoring has been confounded with parental knowledge (Kerr, Stattin & Burk, 2010), consider responses to these criticisms (Keijsers, Frijns, Brange, & Meeus, 2009; Keijsers, Brange, VanderValke, & Meeus, 2010; Soenens, Vansteenkiste, Luyckx, & Goossens, 2006) and conduct a necessary re-examination of the role of perceived parenting in reducing adolescents' susceptibility to

depression. In this thesis, I examine three central issues: 1) Do perceived parental knowledge, adolescent disclosure, and parental monitoring strategies predict adolescent depression over time? 2) Does adolescent depression predict perceived parental knowledge, adolescent disclosure, and parental monitoring strategies over time? 3) Are perceived parental knowledge, adolescent disclosure, and parental monitoring strategies related over time?

Adolescent Depression

Depression has been defined in different ways in the research literature (Compass, Ey & Grant, 1993). Common among definitions of depression are symptoms of depressed mood and anhedonia (DSM-IV-TR, 2000), as well as impairments in cognitive, affective and behavioral domains (Essau & Ollendick, 2009). Researchers often define depression using a dimensional approach that considers depression as a syndrome of related symptoms varying in frequency and severity (Avenevoli, Knight, Kessler, Merikangas, 2008). Many adolescents experience moderate symptoms of depression, and the dimensional approach takes into account adolescents that may not meet criteria for major depressive disorder (DSM-IV-TR, 2000), but who experience impaired functioning nevertheless (Lewinsohn, Solomon, Seelery & Zeiss, 2000). Symptoms of depression include: feelings of sadness or loneliness, interpersonal relationship problems, fatigue, weight loss, feelings of worthlessness, and insomnia (Avenevoli et al., 2008; Essau & Ollendick, 2009; Hankin et al. 1998, Watts & Markham, 2005).

The prevalence of depressive symptoms increases in adolescence (Hankin et al. 1998), and research suggests that age of onset of depression is most likely to occur in mid to late adolescence (Kessler, McGonagle, Swartz, Blazer, & Nelson, 1993; Lewinsohn et al., 1986). In recent research, the etiology of adolescent depression has been increasingly studied (Abela & Hankin, 2008; Muris et al., 2001), and several biological, psychological and psychosocial factors associated with the development of depression have been identified; for example, research suggests adolescence may be a

particularly vulnerable period of development for depression as a result of hormonal changes during puberty and increased life stressors during adolescence, coupled with ineffective coping strategies (see Abela & Hankin, 2008 for a review). Although the development of depression is clearly complex, one line of research has focused on interpersonal factors, notably, the role of the family (Gil-Rivas et al., 2003; Greenberger & Chen, 1996, Kim & Ge, 2000).

Researchers suggest parenting has a strong and enduring influence in adolescence (Devore & Ginsburg, 2005) and that the family plays an important factor in the development of pathology (Dekovic, Janssens, & Van as, 2003). The role of the parent has been underscored in both cognitive and interpersonal theories of depression (Abela & Hankin, 2008; Rudolph, Flynn & Abaied, 2008). For example, cognitive theorists have noted that parents play a large role in shaping adolescents' views about themselves and others, and may contribute to whether adolescents are at increased risk for cognitive vulnerabilities, such as negative attribution style or negative self-schemas (Bruce, Cole, Dallaire, Jacquez, Pineda & LaGrange, 2006). Further, in interpersonal theories of depression, relations with parents are thought to impact youth's abilities to regulate emotions in complex social situations (Rudolph et al., 2008).

Theories of Parenting and Adolescence

Throughout the last century, parents have been regarded as very important, if not the most important, agents in the socialization of their children (Maccoby, 1992). Social control theory, for example, has long recognized parents' role in teaching children self-regulation skills (Gottfredson & Hirschi, 2003). According to social control theory, parents instill the ability to self-regulate in their children through active monitoring, concern and supervision of their child (Gottfredson, & Hirschi, 2003). For example, establishing rules that the child must abide by at an early age teaches the child to self-regulate their behavior to be consistent with parental expectations. Internalized self-regulation, in turn, enables the child to control complex emotions, and behave in a socially acceptable way in later

development (Finkenauer, Engels & Baumeister, 2005). Indeed, difficulties in self-regulating have been associated with internalizing and externalizing behaviors (Finkenauer et al., 2005; Rudolph et al. 2009). Although it is thought that children are especially susceptible to parental influences in early childhood and that the groundwork for later development is established early on in the child's development, parents continue to exert influence throughout the life course (Bronfenbrenner, 1986; Maccoby, 1992), and are thought to be especially important during transitional periods of development (Darling, 2007).

Adolescence, in particular, represents a period of great transition (Arnett, 1999). While adolescence is a period of development characterized by rapid growth in physical and mental capacities, adolescence also represents a period of heightened susceptibility to several health concerns such as accidents, injuries, depression, and suicide (Dahl, 2004). Many researchers suggest that during this transitional period, parents must actively monitor and track their adolescents' activities to reduce adolescents' susceptibility to aversive outcomes (see Steinberg, 2004). The ways parents monitor and supervise, however, will likely change during adolescence from direct supervision in the home to more indirect ways of monitoring (i.e., asking adolescents about their activities with friends outside the home) as youth spend increasingly more time out of the immediate supervision of their parents (Darling, 2007; Fleming et al., 2008). Furthermore, as adolescents establish greater independence from parents, they begin to become more active agents in their own development (Darling, 2007).

In the past, although researchers acknowledged that children and adolescents are active participants in parent-child interactions, researchers were limited in their analyses by existing methodologies, and the role of the parent was tested as primarily unidirectional, with parenting behaviors serving as antecedents to adolescent outcomes (Maccoby, 1984). As a result of new methodologies, however, the adolescent increasingly has been considered as an active agent in analyses examining developmental processes, in addition to the parent (Maccoby, 1992; Maccoby,

2000). Furthermore, Bronfenbrenner's (1986) ecological system theory has brought researchers' attention to the reciprocal relations among multiple influences of development. More specifically, the contention that the influence of parental monitoring on adolescent outcomes may vary as a function of characteristics of the adolescent (Stattin & Kerr, 2000) is consistent with ecological systems theory, and highlights the need for researchers to consider both parent and adolescent contributions to development, as well the reciprocal relations among them. As adolescents become more autonomous, their perceptions and contributions may become increasingly important, and therefore the role of the parent should be carefully considered in conjunction with the role of the adolescent. Accordingly, this thesis addresses both perceived parent and adolescent contributions to adolescent depression.

Parental Monitoring and Adolescent Depression

Parental monitoring, in particular, has been regarded by researchers as one way parents can reduce adolescent susceptibility to depression (Frojd et al., 2007; Kim & Ge, 2000; Sagrestano et al., 2003) because parental attempts to solicit information from adolescents and supervise adolescents' activities communicates to adolescents that their parents are interested in and concerned about their well-being (Frojd et al., 2007). It has also been thought that parental monitoring provides parents opportunities to support and guide their adolescents during stressful or difficult periods (Keijsers et al., 2009). Several studies have underscored the importance of parental monitoring as a predictor of lower levels of adolescent depression (Frojd et al., 2007; Gil-Rivas et al., 2003; Jacobson & Crockett, 2000; Kim & Ge, 2000; Klein & Forehand, 2000; Sagrestano et al., 2003; Steinberg et al. 1991; Yu et al. 2006). For example, in a sample of over 17,000 adolescents from Finland, Frojd et al. (2007) found that low levels of perceived parental monitoring predicted higher depression scores on the Brief Depression Inventory (BDI). Parental monitoring also was a stronger predictor of adolescent depressive symptoms than was family structure (i.e., whether parents were divorced, separated, etc.). Frojd et al.'s results are consistent with those of Jacobson and Crockett (2000), who found that the

link between low perceived parental monitoring and adolescent depression was robust across gender and grade of the adolescent, as well as maternal work status, in a sample of 424 American seventh to twelfth grade adolescents. Similarly, when Yu et al. (2006) employed a cut-off score using the Child Depression Inventory to identify depressed versus nondepressed youth in a sample of 752 preadolescents, depressed youth reported significantly lower levels of perceived parental monitoring than nondepressed youth.

The link between parental monitoring and adolescent depression has been further supported by longitudinal and cross-cultural research. Sagrestano et al. (2003) used diagnostic interviews to assess depression in a sample of 302 preadolescents and collected information on parental monitoring from both the parents and the preadolescents over a two-year period. Consistent with cross-sectional research, for both parent and preadolescent reports, low perceived parental monitoring at time one predicted higher levels of adolescent depression at time two when controlling for depression at time one (Sagrestano et al., 2003). In a cross-cultural study, Gil-Rivas (2003) examined the importance of parental monitoring in a sample of 272 sixteen year-old adolescents in Mexico, and found that low scores of perceived parental monitoring predicted higher adolescent depression scores, leading the authors to conclude that parenting plays an important role in adolescent internalizing problems for Mexican adolescents. Similarly, in a study of Chinese American families by Kim and Ge (2003), low perceived parental monitoring predicted higher depressive symptoms among thirteen year-olds for both parent and adolescent reports.

The link between parental monitoring and adolescent depression appears robust across adolescent gender, grade, culture, and time. Importantly, the association between low levels of parental monitoring and higher levels of depression also has been reported across multiple informants (Sagrestano et al., 2003; Kim & Ge, 2003). Although many researchers have argued that adolescents' subjective experiences of parenting behavior are perhaps more important than actual parenting

behaviors (Fletcher, Steinberg, & Williams-Wheeler, 2004; Steinberg, 1991), findings from multiple informant studies suggest both parent and adolescent-reported parental monitoring is associated with lower levels of depression among adolescents. As a result, parental monitoring has been regarded by researchers as an important predictor of positive adolescent adjustment (Frodj et al., 2007; Kim & Ge, 2000; Sagrestano et al., 2003), and researchers have encouraged parents to monitor and track their adolescents' activities, whereabouts and relationships (Snyder & Patterson, 1987). Furthermore, researchers have urged intervention and prevention programs aimed at reducing adolescents' susceptibility to depression to incorporate teaching parents of depressed adolescents effective parental monitoring and supervision strategies (Frodj et al., 2007; Kim & Ge, 2000; Sagrestano et al., 2003) in the hope of equipping parents with ways to communicate care and concern to adolescents, and intervene in adolescents' activities by providing support and guidance when necessary.

A Call for a Reinterpretation

As compelling as the research may seem, there is reason to question the claim that parental monitoring reduces adolescents' susceptibility to depression. In 2000, Stattin and Kerr called into question the decades of research supporting the importance of parental monitoring in promoting positive adolescent development after a comprehensive review of the literature revealed that parental monitoring was most often operationalized by asking adolescents and parents the extent to which parents were *knowledgeable* about their adolescents' whereabouts and activities, with the implication that parents who were knowledgeable about their adolescents' activities *actively* solicited that information from their adolescents. Stattin and Kerr argued that assuming knowledgeable parents are good monitors is erroneous, however, because determining parents' knowledge of their adolescents' activities does not actually inform researchers about the ways parents come to be knowledgeable. Indeed, in a study of 703 adolescents in Sweden, Stattin and Kerr found that when parental monitoring (i.e., parental solicitation and control) was disentangled from parental knowledge, parental knowledge

was found to be highly negatively correlated with adolescent problem behavior ($r = -.50$), whereas parental solicitation and control were only modestly negatively correlated with adolescent problem behavior ($r = -.13$ and $r = -.22$ respectively), supporting Stattin and Kerr's claim that parental knowledge and parental monitoring represent distinct parenting constructs, and may be uniquely related to adolescent outcomes.

Most researchers, however, have relied on measures of parental knowledge to capture parental monitoring efforts. For example, Frojd et al. (2007), Gil-Rivas et al. (2003), Jacobson and Crockett (2000), Kim and Ge (2000), Klein and Forehand (2000), Sagrestano et al. (2003), and Yu et al. (2006) measured parental monitoring as knowledge of adolescents' activities and friends with items such as "Do your parents know most of your friends?" (Frojd et al., 2007) and "How often do your parents know where you are on weekends?" (Jacobson & Crockett, 2000). Measures such as these do not capture the direct *actions* on the part of the parent to control and solicit information about their adolescent's activities and friends (Dishion & McMahon, 1998), such as setting rules for how late their adolescent can stay out at night and asking their adolescent where they have been or where they are going. As a result, the association between parental monitoring and adolescent depression observed in past research better reflects an association between parental *knowledge* and adolescent depression.

Sources of Parental Knowledge

Few could argue against Stattin and Kerr's finding that measures of parental "monitoring" used in past research were actually measures of parental knowledge (a finding verified in an extensive review by Crouter and Head, 2002). Parental "monitoring," assessed as knowledge, has been implicated in many adolescent outcomes, in addition to adolescent internalizing problems. For example, past research reports that highly "monitored" adolescents engage in less delinquency (Patterson & Stouthamer-Loeber, 1984; Pettit, Bates, Dodge & Meeus, 1999), cigarette smoking

(Mott, Crowe, Richardson & Flay, 1999), substance use (Steinberg, Mounts, Lamborn, & Dornbusch, 1994; Barnes, Reifman, Farrell & Dintcheff, 2000), risky sexual behaviors (Meschke & Silbereisen, 1997; Rodgers, 1999) and fare better in school (White & Kaufman, 1997; Brown Mounts, Lamborn, & Steinberg, 1993) than do poorly “monitored” adolescents. In other words, adolescents who report that their parents are knowledgeable about their activities also report lower levels of depression and are involved in lower levels of problem behavior. Given that such an extensive body of literature on parental monitoring actually represents decades of research on parental knowledge (Waizenhofer, Buchanan, & Jackson-Newsom, 2004), uncovering the behaviors that provide parents with knowledge, and then determining the associations between these behaviors and adolescent outcomes, has become a significant priority among researchers.

Stattin and Kerr asserted that parents may obtain knowledge in three primary ways: adolescent disclosure (i.e., spontaneous sharing of information by the adolescent), solicitation (i.e., parental asking) and parental control (i.e., parental limit-setting). Parental solicitation and control are consistent with past conceptualizations of parental monitoring. In contrast to past research, Stattin and Kerr (2000) posited that parents’ primary source of knowledge would be adolescent disclosure rather than parental monitoring efforts. As youth spend increasingly more time outside of the direct supervision of their parents (Dubas & Gerris, 2002; Kerr et al., 2010), parents have less direct knowledge about their adolescents (Keijsers et al., 2009), and can no longer rely on regulatory components of parenting (i.e., parental solicitation and control) because adolescents can manage information revealed to parents by choosing which information to voluntarily disclose (Kerr et al., 2010; Marshall, Tilton-Weaver & Bosdet, 2005). Stattin and Kerr suggested, therefore, that by relying on measures of parental knowledge to assess parental monitoring, researchers likely had captured adolescent willingness to disclose rather than parental monitoring behaviors. Consistent with their hypothesis, in a sample of adolescents in Sweden, Stattin and Kerr (2000; Kerr & Stattin, 2000) found

that adolescent disclosure was the most significant predictor of parental knowledge. Parental solicitation and control contributed little to the prediction of parental knowledge. In fact, when voluntary adolescent disclosure was controlled, the association between parental solicitation and parental knowledge was eliminated.

Since Stattin and Kerr's findings were published, several researchers have reported a strong relation between adolescent willingness to disclose information to parents and parents' level of knowledge (Kerr & Stattin, 2000; Kerr & Stattin, 2003; Kerr et al., 2010; Laird, Pettit, Bates, & Dodge, 2003; Salafia, Gondoli & Grundy, 2009; Soenens et al., 2006), and higher levels of adolescent disclosure have been shown to predict higher levels of parental knowledge over time (Kerr et al., 2010; Willoughby & Hamza, in press). As a result, many researchers have concluded that measures of 'monitoring' haven't captured monitoring per se, but instead have captured parental knowledge, which is strongly predicted by adolescents' willingness to disclose information to parents (see Soenens et al., 2006, Kerr et al., 2010).

Adolescent Disclosure and Depression

If adolescent disclosure is an important source of parental knowledge, adolescent disclosure may also be relevant to understanding adolescent depression, but the role of adolescent willingness to disclose in relation to adolescent depressive symptoms is poorly understood at present. Although the association between disclosure and depression has not received much attention from researchers since Stattin and Kerr's (2000) review, adolescent disclosure may be an important predictor of adolescent depressive symptoms. It may be that disclosure provides parents with opportunities to provide support and guidance to struggling adolescents (Keijsers et al., 2009). Furthermore, adolescent depressive symptoms may not be readily observable to parents (Fleming et al., 2008) and thus to be knowledgeable parents may have to rely on adolescents' willingness to disclose. The act of disclosing, in and of itself, may reduce adolescent susceptibility to depression (Kerr & Stattin, 2000), because

adolescents may feel better after disclosing, and disclosure may facilitate a better relationship with parents (Collins & Miller, 1994).

There is only one study that has considered the role of adolescent disclosure, parental solicitation and parental control in the context of adolescent depression. In a cross-sectional study by Kerr and Stattin (2000), adolescent disclosure emerged as the strongest predictor of adolescent depressive symptoms in a sample of 14 year-olds in Sweden, and perceived parental solicitation and control were not associated with reduced adolescent depressive symptoms. Although Kerr and Stattin examined parental knowledge and its association with each hypothesized source of parental knowledge individually (i.e., adolescent disclosure, parental solicitation and parental control) Kerr and Stattin did not test associations among parental knowledge, adolescent disclosure, parental solicitation and parental control simultaneously in relation to adolescent depression. Therefore, the role of adolescent disclosure in the context of all the parenting factors (i.e., parental knowledge, parental solicitation and parental control) is unknown. Furthermore, although Kerr and Stattin concluded that adolescent disclosure likely reduces adolescent susceptibility to depression, it is unclear whether disclosure reduces adolescent risk for depression or whether depression leads to reduced disclosure to parents. Kerr and Stattin's study was not able to directly test the direction of effects because the study was limited by its cross-sectional design. As adolescents who engage in problem behaviors tend to reduce disclosure to parents (Kerr et al., 2010), it may be that depressed adolescents also withdraw disclosure from parents. In order to test this hypothesis, however, longitudinal research is necessary.

Parental Monitoring and Adolescent Externalizing

Since Stattin and Kerr's (2000) review was published, advances have been made in understanding the parental monitoring construct and its relation to adolescent disclosure and parental knowledge, but specifically in relation to adolescent externalizing behaviors (Fletcher et al., 2004;

Soenens et al., 2006; Kerr et al., 2010; Willoughby & Hamza, in press).¹ In these recent studies, adolescent disclosure emerges as a strong predictor of parental knowledge, which in turn is associated with less adolescent involvement in problem behaviors. To understand the role of the parent in the development specifically of adolescent depressive symptoms, it is important to consider these recent findings, as they provide important information about the ways parental monitoring practices may be related to adolescent susceptibility to depression.

Some researchers were concerned that Stattin and Kerr's (2000) finding that adolescent disclosure was the strongest predictor of parental knowledge, rather than parental monitoring efforts, would be interpreted that parents have relatively little influence on adolescent externalizing behaviors (Fletcher et al., 2004). If parental knowledge measures have captured adolescent willingness to disclose more so than parental solicitation and control efforts, what then is the role of the parent? According to Soenens et al. (2006), parental monitoring may promote adolescent disclosure, or parenting may have direct effects on adolescent problem behavior involvement. Recent longitudinal research, however, has found little evidence that parental solicitation or parental control elicit disclosure from adolescents. Kerr et al. (2010) examined the role of perceived parental monitoring in a sample of 938 adolescents in Sweden, and found that parental solicitation and control did not predict adolescent disclosure over a two-year period. Similarly, Willoughby and Hamza (in press) found little evidence that parental solicitation or control predicted adolescent disclosure in a sample of 2941 adolescents across a four-year period. The direct effects hypothesis – that parental monitoring directly predicts lower levels of adolescent problem behaviors – has also yielded little support. In a study of 309 adolescents, Keijsers et al. (2009) found that adolescent reports of perceived parental solicitation and control did not predict less adolescent problem behavior involvement over a three-year period

¹ Throughout the remainder of this thesis, parental monitoring will refer to parental solicitation and control.

(also see Soenens et al., 2006). Overall, these longitudinal findings suggest parental monitoring may not be an effective practice to promote adolescent disclosure or deter problem behavior involvement.

Interestingly, in both Kerr et al.'s (2010) and Willoughby and Hamza's (in press) studies, a direct link from parental solicitation to adolescent problem behavior involvement was identified; however, the link was in the opposite direction of that hypothesized by Soenens et al (2006). Specifically, higher levels of solicitation predicted *higher* levels of involvement in problem behavior over time when controlling for adolescent disclosure and parental control. As adolescents enter into adolescence and spend increasingly more time with peers and out of the direct supervision of their parents (Dubas & Gerris, 2002), parental monitoring may no longer be an effective parenting strategy (Kerr et al., 2010). For example, as adolescents try to obtain independence from parents, parental solicitation and control may be perceived by the adolescent as intrusive (Stattin & Kerr, 2003). The finding that more parental solicitation predicted higher levels of problem behavior involvement in Kerr et al.'s and Willoughby and Hamza's studies seems consistent with such a hypothesis. Furthermore, in studies of reciprocal effects between parental monitoring and adolescent externalizing behaviors by Kerr et al. (2010) and Keijsers et al. (2010), more adolescent involvement in problem behaviors did not predict increased parental solicitation over time, suggesting that increased parental solicitation was not a response to adolescent problem behavior involvement. Further support for the prediction that high levels of parental monitoring may be perceived by the adolescent as intrusive comes from Hawk, Hale, Raaijmakers and Meeus (2008). In a study of 307 Dutch adolescents, Hawk et al. found that perceived parental control predicted adolescents' feelings of parental privacy invasion over time.

Despite advances made in the parental monitoring literature since Stattin and Kerr's review, researchers have yet to disentangle parental knowledge and adolescent disclosure from parental solicitation and control, and consider these parenting factors and adolescent disclosure in relation to

adolescent depression over time. As a result, it is unclear whether parental monitoring behaviors are positively or negatively related to depression over time, or whether parental monitoring behaviors serve more as responses, rather than antecedents, to adolescent depressive symptoms. Given past recommendations by researchers for intervention efforts aimed at depressed adolescents to include parental monitoring training for parents of depressed adolescents (Frojd, 2007; Kim & Ge, 2000; Sagrestano et al., 2003; Steinberg, 1991), it is important to examine whether monitoring strategies are effective parenting practices in reducing adolescent susceptibility to depression.

Parental Solicitation and Adolescent Depression

Although solicitation may communicate parents' interest and concern to the adolescent (Dishion & McMahon 1998), it is unclear whether this parenting strategy is effective in reducing adolescent susceptibility to depression since, as I have reviewed above, researchers have historically relied on measures of parental *knowledge* to assess parental solicitation. Recall that when Kerr and Stattin (2000) examined associations between adolescent disclosure, parental solicitation, parental control, and adolescent depressive symptoms in their sample of 14-year olds in Sweden, adolescent disclosure was the strongest predictor of adolescent depression. Parental solicitation did not predict lower levels of adolescent depression or self-esteem. No study, however, has yet to replicate Kerr and Stattin's (2000) findings, or examine the link between parental solicitation and adolescent-reported depressive symptoms over time. Furthermore, Stattin and Kerr's cross-sectional study specifically focused on early adolescence, but the influence of parental solicitation may change in mid to late adolescence. For example, parental attempts to monitor may become less appropriate in mid to late adolescence when adolescent needs for autonomy and independence are greatest (Keijsers et al., 2009). Furthermore, parental solicitation strategies may also change in response to adolescent depressive symptoms, but no study has yet to examine bidirectional associations between parental solicitation and adolescent depressive symptoms.

Parental Control and Adolescent Depression

In contrast to parental solicitation, parental control has been associated with adolescent depression in previous research (for a review, see Gerlsma & Emmelkamp, 1990). The extent to which parental control measures were confounded with measures of parental knowledge, however, is unclear. Many researchers have included an assessment of parental control in their measures of parental knowledge, and therefore past findings may indicate an association between adolescent depression and parental knowledge rather than adolescent depression and parental control. The past findings on the relation between parental control and adolescent depression are mixed (Gerlsma & Emmelkamp, 1990). Some researchers have reported that parental control is linked to better adjustment (Barber, 1996), some have found that higher levels of control are associated with poor adjustment (Gerlsma & Emmelkamp, 1990), and others have reported no relation (Hasebe, Nucci & Nucci, 1994; Magaro & Weisz, 2006). The discrepancies among findings may be a result of different definitions of control (Finkelstein, Donenberg, & Martinovich, 2001) such as parental authoritativeness (Steinberg et al., 1991), rule-setting (Finkelstein et al., 2001) or overprotection (Parker, 1983), in addition to studies using measures of parental knowledge to assess parental control (Steinberg et al., 1991).

Although parental control in early childhood may be an important parenting practice in navigating the child through development (Stattin & Kerr, 2003), as youth try to establish independence in adolescence, parent attempts to control may be perceived by the adolescent as intrusive or controlling (Keijsers et al., 2009). In Kerr and Stattin's (2000) study of adolescents, perceptions of parental control were correlated with feelings of being controlled ($r = .34$), and feelings of being controlled were associated with a variety of measures of maladjustment including increased susceptibility to depression, low self-esteem, and expectations for failure. Kerr and Stattin's findings are supported by other studies, which have shown that feeling lack of personal control is associated

with maladjustment and internalizing behavioral problems such as depression (e.g., Seligman, 1991). It may be that as adolescents, in particular, attempt to establish autonomy and independence from parents, any advantages of parental control are negated by adolescents' perceived feelings of being controlled.

The Present Study

To determine the role of the parent in adolescent depression, my thesis extends the reinterpretation of parental monitoring by disentangling previously confounded parenting practices and examining these parenting behaviors (i.e., parental solicitation and parental control) along with parental knowledge and adolescent disclosure in relation to adolescent depressive symptoms. Measures of parental solicitation and control were used to assess active parental monitoring strategies and the unique contributions of parental knowledge and adolescent disclosure were also considered.

Since past research on parental monitoring in relation to adolescent depression has been limited by its large reliance on cross-sectional designs (Frojd et al., 2007; Gil-Rivas et al., 2003; Jacobson & Crockett, 2000; Kim & Ge, 2003; Klein & Forehand, 2000; Steinberg, 1991; Yu et al., 2006), I addressed my research questions by examining data collected from adolescents at two time points: grade 10 and grade 11. I chose to consider the reports of adolescents in grades 10 and 11 because researchers have suggested that the incidence of depression increases during this period (Hankin et al., 1998). Furthermore, mid-adolescence represents a period of increased autonomy and independence from parents (Keijsers et al., 2010). Adolescents in this age period spend increasingly more time out of the supervision of their parents, and new opportunities to establish independence are afforded (i.e., getting a driver's license, starting a job). It is during this period when adolescents attempt to obtain greater independence from parents, and that parental attempts to solicit and control may be perceived as increasingly intrusive (Kerr & Stattin, 2003; Kerr et al., 2008).

My thesis addressed three central questions:

Question one: Do parental knowledge, adolescent disclosure, parental solicitation and parental control, predict adolescent depression? On the basis of past research (Frojd et al., 2007; Gil-Rivas et al., 2003; Jacobson & Crockett, 2000; Kim & Ge, 2000; Klein & Forehand, 2000; Sagrestano et al., 2003; Steinberg, et al., 1991; Yu et al., 2006), I hypothesized that parental knowledge would be associated with depression, such that higher levels of knowledge would be linked with lower levels of depression (Kerr & Stattin, 2000). See Table 1 for a summary of hypotheses. I also predicted that adolescent disclosure would be linked to lower levels of depression as a result of research showing a strong link between adolescent willingness to disclose and adolescent involvement in problem behaviors (Kerr & Stattin, 2000; Kerr & Stattin, 2003; Kerr et al. 2010; Laird et al., 2003; Soenens et al., 2006; Willoughby & Hamza, in press). My prediction was also consistent with the work of Kerr and Stattin (2000), who reported a unique concurrent negative relation between adolescent disclosure and depressive symptoms among a sample of 14 year-olds in Sweden.

With regards to parental monitoring, I expected that parental solicitation in grade 10 would be associated with higher levels of adolescent depression in grade 11. My hypothesis came from findings by Kerr et al. (2010) and Willoughby and Hamza (in press) who found that higher levels of solicitation were associated with more frequent engagement in problem behavior involvement over time. I also anticipated that parental control in grade 10 would be associated with adolescent depression in grade 11, such that higher levels of control would be associated with higher levels of adolescent depression, given findings linking perceived feelings of being controlled by parents with feelings of privacy invasion (Hawk et al., 2008) and depressive symptoms (Kerr & Stattin, 2000).

Question two: Does adolescent depression predict parental knowledge, adolescent disclosure, parental solicitation and control?

To my knowledge, this thesis represents the first examination of the reciprocal relations among parental knowledge, adolescent disclosure, parental monitoring and adolescent depression. Although

my examination of the reciprocal associations between adolescent depression and parental knowledge was exploratory, I anticipated that adolescents who had higher levels of depressive symptoms in grade 10 would report that their parents had lower knowledge of their activities in grade 11. This hypothesis was based on research findings supporting a bidirectional link between problem behavior and parental knowledge, such that adolescents involved in problem behaviors report that their parents have lower levels of knowledge over time, in addition to lower levels of parental knowledge predicting lower levels of problem behavior over time (Kerr et al., 2010; Laird et al., 2003; Willoughby & Hamza, in press).

Another question that has yet to be addressed within the existing literature is whether adolescent depression may influence adolescent willingness to disclose information to parents. Studies have found that adolescents who engage in higher levels of delinquent behaviors disclose less information to parents over time (Kerr et al., 2010; Keijsers et al., 2010). Researchers have found that adolescent externalizing and internalizing problems follow similar trajectories (Fleming, Mason, Mazza, Abbott & Catalano, 2008; Needham, 2007), and although these behaviors are not the same, both externalizing and internalizing behaviors are often not readily observable to parents (Fleming et al., 2008). As withdrawal is a characteristic of depression (DSM-IV-TR, 2000), depressed adolescents also may disclose less to parents about their activities. I predicted, therefore, that higher levels of depression in grade 10 would be associated with lower levels of adolescent disclosure in grade 11.

It also is important for researchers to consider whether associations between parental monitoring variables and adolescent depression better reflect parental *responses* to depressive symptoms rather than potential *causes* of depressive symptoms. It may be that adolescents are, in fact, driving parental behaviors. For example, parents may respond to depression by increasing parental solicitation and control to communicate their interest in the adolescents' activities (Dishion & McMahon, 1998). This hypothesis, however, is not supported by recent research. Kerr et al. (2008)

found that when adolescents seem cold or closed, parents responded by reducing parental monitoring efforts (measured by a composite of parental solicitation and control questions). Given Kerr et al's findings, I predicted that adolescent depression in grade 10 would predict lower levels of both parental solicitation and parental control in grade 11.

Question three: Are parental knowledge, adolescent disclosure, parental solicitation and parental control related over time? I expected to replicate recent findings that higher levels of adolescent disclosure predict higher levels of parental knowledge (Kerr & Stattin, 2000; Kerr & Stattin, 2003; Kerr et al. 2010; Laird et al., 2003; Salafia et al., 2009; Soenens et al., 2006; Willoughby & Hamza, in press). I also expected that parental solicitation and control in grade 10 would not be significantly associated with parental knowledge in grade 11, given Stattin and Kerr's finding that parental solicitation and control were weak predictors of parental knowledge when adolescent disclosure was included in their study.

In addition, I hypothesized that higher levels of parental knowledge would be associated with greater adolescent willingness to disclose, given findings that parental knowledge predicts adolescent disclosure over time (Willoughby & Hamza, in press). In contrast, there has been little evidence that parental solicitation and control predict adolescent disclosure (Kerr et al., 2010; Willoughby & Hamza, in press); therefore, I anticipated that parental solicitation and parental control in grade 10 would not be significantly associated with adolescent willingness to disclose in grade 11.

My examination of the predictive value of parental knowledge on parental solicitation and control, as well as adolescent disclosure on parental solicitation and parental control, was exploratory. I did, however, expect that parental solicitation and control would be reciprocally linked as these are related monitoring practices. Willoughby and Hamza (in press) found that parental solicitation and control were reciprocally associated across the high school years. Therefore, I predicted that higher

levels of parental solicitation in grade 10 would predict higher levels of parental control in grade 11, and that higher levels of control in grade 10 would predict higher levels of solicitation in grade 11.

Adolescent Perceptions of Parental Monitoring

To assess parental knowledge, as well as adolescent disclosure, parental solicitation, and parental control, adolescent self-reports of these measures were examined. The present study specifically sought to examine adolescents' perceptions of parental monitoring behaviors. Although it also would have been beneficial to include parent reports of their monitoring behaviors, this was not possible in the present study. In general, however, parent and adolescent reports of parental knowledge, adolescent disclosure and parental monitoring behaviors appear to be significantly correlated (e.g., correlations range from .30 to .50, $ps < 0.001$; Kerr & Stattin, 2000; Kerr et al., 2010; Soenens et al., 2006; Stattin & Kerr, 2000). Perhaps more importantly, these research studies indicate that associations among parental knowledge, adolescent disclosure, parental solicitation and parental control tend to be consistent across parent and adolescent reports (Fletcher et al., 2004; Keijsers et al., 2010; Kerr & Stattin, 2000; Soenens et al. 2006; Stattin & Kerr, 2000). For example, in Kerr and Stattin's study, the association between high levels of adolescent disclosure and lower levels of adolescent depression was found for both parent and adolescent reports. Further, Keijsers et al.'s study indicated that associations among adolescent disclosure, parental solicitation, parental control and problem behaviors held across the reports of multiple informants, including mothers, fathers and adolescents. These findings offer support for the contention that adolescent and parent perceptions are closely related.

It should also be noted that some researchers have argued that adolescent *perceptions* of parenting may in fact be more important than actual parenting practices. For example, Fletcher et al. (2004) argued that parenting influences adolescent development through adolescents' perceptions of being parented. According to Fletcher et al. (2004), parenting is meaningful so far as parenting

behaviors are perceived by the adolescent to be meaningful (also see Boyce, Frank, Jensen, Kessler, Nelson & Steinberg, 1998). In other words, if adolescents perceive that their parents are knowledgeable or will be knowledgeable of their behavior, it matters less that parents report themselves as knowledgeable, because adolescents' perceptions are more likely to shape their behaviors (Fletcher et al., 2004). Conceptualized in this way, adolescents' subjective experiences of parental behaviors are thought to influence their developmental outcomes (Steinberg et al., 1991).

Covariates – Gender and SES

Several studies have documented gender differences between boys and girls in reported depressive symptoms. Specifically, several studies have found that after the age of 13, girls report more depressive symptoms than boys, a trend fairly consistent across the period of adolescence (Hasebe et al., 2004; Frojd et al., 2007; Gil-Rivas et al., 2003; Muris et al., 2001; Young et al., 2005). Importantly, these gender differences have been shown to become especially pronounced during mid-adolescence, around the age of 15 (Hankin et al., 1998). Further, researchers have found that girls report more parental knowledge, adolescent disclosure, parental solicitation and parental control, on average, than boys (Crouter & Head, 2002; Kerr & Stattin, 2000; Stattin & Kerr, 2000). In order to account for these gender differences, gender was included as a covariate in all primary analyses in the present study. Despite these relations with gender, the associations among parental knowledge, adolescent disclosure, and parental monitoring behaviors appear to be consistent for both girls and boys (Stattin & Kerr, 2000; Willoughby & Hamza, in press). In other words, there is no research support for gender acting as a moderator of the associations among these adolescent and parenting behaviors.

Socioeconomic status also has been implicated in the study of depression. More specifically, some research evidence suggests that lower parental SES is associated with increased vulnerability for youth depressive symptoms (Kessler, Berglund, Demler, Jin, Koretz, & Merikangas, 2003; Kim & Ge,

2000; Gilman, Kawachi, & Fitzmaurice, 2003). Further, lower SES has been associated with lower levels of parental knowledge, parental solicitation and parental control (Fletcher et al., 2004; Kim & Ge, 2000; Dekovik et al., 2003). Therefore, parental educational status was included as a covariate in the present study to account for these relations involving SES.

Method

Participants

Students from eight high schools encompassing a school district in Ontario, Canada took part in the study as part of a larger longitudinal project examining youth lifestyle choices in adolescence, involving five waves of survey data from 2003 to 2008. Consistent with the broader Canadian population (Statistics Canada, 2001), 92.5% of the participants were born in Canada and the most common ethnic backgrounds reported other than Canadian were Italian (32%), French (17%), British (16%), and German (11%). Data on socioeconomic status indicated mean levels of education for mothers and fathers falling between “some college, university or apprenticeship program” and “completed a college/apprenticeship/technical diploma.” Further, 71% of the respondents reported living with both birth parents, 14% with one birth parent and a stepparent, 15% with one birth parent (mother or father only), and the remainder with other guardians (e.g., other relatives, foster parents, etc.).

The analyses for the present study includes 1995 participants (51.3% female) who completed the survey in both grade 10 and grade 11. Grades 10 and 11 were selected because these survey periods included all relevant study measures, and grade 10 to 11 represented the period of greatest increase in depressive symptoms over time. The overall participation rate (the percentage of all students enrolled in the eight participating high schools who completed the survey on the days of survey administration) ranged from 83 to 86% across all the waves of data collection; nonparticipation was due to student absenteeism (average of 13.5%), parental refusal (average of .06%), or student

refusal (average of 1.4%). Student absenteeism from class was due to illness, a co-op placement, a free period, or involvement in another school activity.

The participating students encompassed three cohorts. Cohort 1 completed the survey in grade 10 of the 2004/2005 academic year ($n = 974$), and Cohort 2 completed the survey in grade 10 of the 2005/2006 academic year ($n = 846$). Students in cohort 3 were absent from survey administration in grade 9 and therefore, first entered the study when they were in grade 10 in the 2005/2006 academic year ($n = 175$). Although cohorts came from the same schools and shared similar demographic characteristics, mean differences in parental knowledge, adolescent disclosure, parental solicitation, parental control, and adolescent depression were considered by conducting a MANOVA analysis for each grade, with cohort as the independent variable. Sex and parental education were treated as covariates. There was a significant difference between cohorts for both grade 10 and grade 11, Wilk's $\lambda = .986, p < 0.001, \eta^2 = .007$ in grade 10 and Wilk's $\lambda = .984, p < 0.01, \eta^2 = .008$ in grade 11. Tukey's post hoc analyses revealed that students in Cohort 1 and Cohort 3 reported more depression in grade 10 than Cohort 2 ($p < 0.008$, mean difference of .16, $\eta^2 = .001$; and $p < .01$, mean difference of .10, $\eta^2 = .004$, respectively). In addition, students in Cohort 3 reported more depression and less disclosure in grade 11 than Cohort 2 ($p < 0.03$, mean difference of .14, $\eta^2 = .003$; and $p < 0.02$, mean difference of .18, $\eta^2 = .004$, respectively). The magnitude of the differences was small, however, and therefore for all analyses cohorts were combined into one sample. Cohort was treated as a covariate in all subsequent analyses, however, and it should be noted that cohort did significantly moderate the results below.

The 1995 longitudinal participants included in the present study represents 76% of the students surveyed in grade 10 (total $n = 2642$), indicating attrition of 24% from grade 10 to grade 11. A MANOVA was conducted to examine mean differences in parental knowledge, adolescent disclosure, parental solicitation, parental control, and adolescent depression between those who completed the

survey in both grade 10 and 11, and those who were not included in the present analyses because they completed the survey only in grade 10. Sex, parental education, and cohort were treated as covariates. The MANOVA was significant (Wilk's $\lambda = .99$, $p < 0.03$, $\eta^2 = .007$), with students who completed the survey only in grade 10 reporting higher levels of depression ($p < .012$, mean difference of .08 and $\eta^2 = .002$) and lower levels of parental knowledge ($p < .016$, mean difference of .07 and $\eta^2 = .002$).

Procedure

A passive parental consent procedure was used for collecting data for the study to ensure a representative sample (see Weinberger, Tublin, Ford, & Feldman, 1990). Weinberger et al. suggest that if active parental consent procedures are used, literate parents are more likely to read and return consent forms than illiterate parents. Further, parents with good relationships with their adolescents are also more likely to read and complete consents, resulting in an overrepresentation of well-functioning adolescents and families. Active informed assent was obtained from the adolescent participants. This procedure was approved by the University Ethics Board and the participating school board. Several strategies were applied in order to ensure parental awareness of the study. First, parents were provided with written correspondence mailed to each student's home prior to the survey administration outlining the study; this letter indicated that parents could request that their child not participate in the study (an automated phone message was also left at each student's home phone number). Second, parent information sessions were held throughout the school district. Third, there was extensive media coverage outlining the study.

At all time periods, the self-report questionnaire was administered to students in classrooms by trained research staff. At each wave, the survey administration took 75 minutes. In the 2004/2005 and 2005/2006 survey administration years, the survey was 12 pages long. In the 2006/2007 year the survey was 16 pages long. To ensure standardization of procedures across classrooms, at least one

research staff person was present in each classroom during survey administration. Students were informed that their responses were completely confidential.

Measures

The study measures are described below (see Appendix B for scale items). Each measure, other than demographics, was assessed in both grade 10 and grade 11.

Demographics. Age, sex, and parental education (one item per parent, averaged for those reporting on both parents, $r = .43$.) were assessed. Higher scores indicate greater age, female gender (1 = male, 2 = female), and greater parental education respectively (1 = *did not finish high school* to 6 = *professional degree*).

Parental Knowledge. The five items used to assess parental knowledge (Brown, Mounts, Lamborn & Steinberg, 1993) required the respondent to indicate on a four-point scale (1 = *almost never or never* to 4 = *almost always or always*) how much his/her parent really knows about his/her free time activities (e.g., How much do your parents/guardians really know about where you go at night?) Ratings were averaged such that higher scores indicated more perceived knowledge. Cronbach's alphas for grade 10 and 11 were .85 and .87 respectively.

Adolescent Disclosure. Adolescent disclosure was measured by three items from Stattin and Kerr (2000) that required adolescents to report how much they spontaneously tell their parents about their friends, school activities and free time (e.g., Do you spontaneously tell your parents about your friends (which friends you hang out with and how they think and feel about various things)? Do you like to tell your parents about what you did and where you went during the evening?). Respondents indicated degree of disclosure on a four-point scale (1 = *almost never or never* to 4 = *almost always or always*). Ratings were averaged such that higher scores indicated more adolescent disclosure. Cronbach's alphas for grade 10 and 11 were .74 and .78 respectively.

Parental Solicitation. Parental solicitation was measured with five items (Steinberg et al., 1994) assessing the frequency in which parents sought to solicit information about the adolescent's activities (e.g., Do your parents/guardians ask you where you go at night? What you do with your free time? Who your friends are? Where you are most afternoons after school?). The four-point scale included the following categories: 1 = *I tell them without their asking*, 2 = *they never ask*, 3 = *they sometimes ask*, and 4 = *they often ask*. Given that the "I tell them without their asking" category overlapped with the adolescent disclosure measure, I recoded all "1" responses as "missing." For participants who answered at least three items with responses other than "I tell them without their asking" composite scores were created. Only 15% of all participants answered all five items with "I tell them without their asking." Missing data was imputed for these participants in an identical manner to other variables – see missing data section below. Ratings were averaged such that higher scores indicated more parental solicitation. Cronbach's alphas for grade 10 and 11 were .80 and .84 respectively.

Parental Control. Parental control was assessed using six items from Stattin and Kerr (2000) that required adolescents to report on the extent to which parents imposed restrictions and required information about adolescent's activities and whereabouts (e.g., Do you need your parent's permission to stay out late on a weekday evening?). Respondents answered on a four-point scale (1 = *almost never or never* to 4 = *almost always or always*). Ratings were averaged such that higher scores indicated more parental control. Cronbach's alphas for grade 10 and 11 were .87 and .87 respectively.

Depressive Symptoms. Depressive symptoms were measured using the Center for Epidemiological Studies Depression Scale (CES-D, Radloff, 1977). Participants indicated how often they experienced 20 symptoms (e.g., I could not get going) over the past two weeks using a four-point scale of 1 (*never*) to 4 (*always*). The scale has been shown to have good reliability with adolescent samples (Gil-Rivas et al., 2003, Greenberger & Chen, 1996, Kim & Ge, 2000). Ratings were averaged

such that higher scores indicated greater reported depressive symptoms. Cronbach's alphas for grade 10 and 11 were .92 and .91 respectively.

Missing Data

Missing data occurred because some participants did not finish the entire questionnaire. In an attempt to distribute the anticipated missing data due to survey length across survey scales, three versions of the survey were included at each time period so that the same scales were not always near the end of the survey. Participants' total amount of missing data across all analysis variables (i.e., age, sex, parental education, cohort, parental knowledge, adolescent disclosure, parental solicitation, parental control and adolescent depression) was computed, and this composite score was then correlated with each study measure to determine if data was missing at random. There were only weak associations between participants' total amount of missing data and their scores on the study measures, accounting for less than 1% of the variance in each variable. For multi-scale items, composite scores were computed for participants who responded to at least 50% of the relevant items. For respondents who did not give a sufficient number of responses within a multi-item scale, missing values within each wave were imputed using the EM (expectation-maximum) algorithm. EM is an iterative maximum-likelihood (ML) procedure in which a cycle of calculating means and covariances followed by data imputation is repeated until a stable set of estimated missing values is reached. Methodological research has demonstrated that ML estimation is preferable to pair-wise deletion, list-wise deletion, or means substitution (Schafer & Graham, 2002). Less than 1% of data imputed was out of range, and these values were rounded to the closest score for each corresponding scale. See Appendix A for information on percentage of missing data for each variable.

There was more missing data on measures of adolescent disclosure, parental solicitation and parental control than on other measures. Higher levels of missing data for the parental solicitation measure was due to the deletion of responses to the "I tell them without their asking" question – see

Measures section for details. For adolescent disclosure and parental control, given that these measures were not disproportionately included near the end of the survey, it is more likely that these measures had more missing data than other measures because the wording of the items in the scales were more lengthy than the other study measures. In total, 12% of the data were imputed. This percentage of imputed data is comparable with other longitudinal survey studies (e.g., Ciarrochi, Leeson & Heaven, 2009; Feldman, Masyn & Conger, 2009; Hyde & Peterson, 2009)

Plan of Analysis

Data were screened for outliers, as well as skewness and kurtosis for each variable. These analyses were followed by an examination of correlations among the analysis variables in order to assess patterns of associations among variables. I also examined possible curvilinear associations between parental solicitation, parental control, adolescent disclosure and depression, but found no significant evidence of curvilinear relations. The primary statistical analyses were carried out with AMOS 16.0. To disentangle associations among parenting variables (i.e., parental knowledge, solicitation and control), adolescent disclosure and adolescent depression, a path analysis was conducted to examine associations among all the variables (See Figure 1). A fully saturated model was used for the primary analysis. Given the exploratory nature of the study, an alpha of .05 was used. Stability paths and concurrent associations among all the variables within each grade were included in the analyses. Gender, parental education and cohort were controlled in all analyses, with correlations specified between the covariates and each variable in grade 10, and paths estimated between each covariate and variables in grade 11.

Results

Preliminary Analyses

Descriptive statistics and correlations. The data screen for univariate outliers revealed that there were 12 cases with z-scores for the depression variable that were higher than 3.3; however, it

was expected that there would be individuals with more extreme scores on the depression variable (z-score ranged from -3.41 to 4.62). To determine whether these cases were multivariate outliers, a Mahalanobis Distance value was calculated for each case. Since no cases had both a very large standardized score and an extreme Mahalanobis Distance value distinctively different from other cases, all 1995 participants were included in the primary analyses. Although all variables demonstrated acceptable univariate skewness and kurtosis (Kline, 2005), the Mardia's coefficient of multivariate normality was greater than |3|, suggesting a violation of the assumption of multivariate normality. As a result, bootstrapping was used for the primary analyses because bootstrapping has been shown to be robust for large samples with non-normal data (Kline, 2005). Bootstrapping is a resampling method whereby many new samples are drawn with replacement from the original sample, resulting in an approximation of the population distribution (Kline, 2005). In the present study, the number of bootstrapped samples was 1000, and bootstrapped estimates of significance values, standardized path coefficients and standard errors were examined.

Table 2 presents the means and standard deviations of the variables. Table 3 presents the intercorrelations among all model variables. In both grades 10 and 11, parental knowledge and adolescent disclosure were negatively correlated with adolescent depression. Parental solicitation was weakly correlated with adolescent depression in grades 10 and 11, and parental control was weakly correlated with adolescent depression in grade 10. Paired sample t-tests were used to examine mean level differences across grade in parental knowledge, adolescent disclosure, parental solicitation, parental control and adolescent depression. Adolescents reported significantly less parental knowledge, $t(1994) = -3.64, p < 0.01$, greater solicitation, $t(1994) = 2.41, p < 0.02$, and less control, $t(1994) = -8.33, p < 0.01$, in grade 11 than grade 10. Adolescents also reported significantly more depressive symptoms in grade 11 than grade 10, $t(1994) = -6.48, p < 0.01$. The change in adolescent disclosure was not significant.

Primary Analysis – Path analysis

Figure 1 summarizes the significant paths for the saturated model and Table 4 presents the standardized path coefficients, standard errors and p-values for each path.

Question 1. Do parental knowledge, adolescent disclosure, parental solicitation and parental control, predict adolescent depression? I predicted that higher levels of parental knowledge in grade 10 would be associated with lower levels of adolescent depression in grade 11, and this hypothesis was supported. I also anticipated that higher levels of adolescent disclosure would be associated with lower levels of adolescent depression, but this hypothesis was not supported. Adolescent disclosure in grade 10 was not significantly associated with adolescent depression in grade 11. Further, I expected that when parental solicitation and parental control were disentangled from parental knowledge and adolescent disclosure, that parental solicitation and parental control would be linked to higher levels of adolescent depression. My hypotheses were not supported: parental solicitation and control in grade 10 did not significantly predict adolescent depression in grade 11.

Question 2. Does adolescent depression predict parental knowledge, adolescent disclosure, parental solicitation and parental control? I hypothesized that higher levels of adolescent depression would predict lower levels of parental knowledge. Consistent with my prediction, higher levels of adolescent depression in grade 10 predicted lower parental knowledge in grade 11. I also anticipated that higher levels of adolescent depression in grade 10 would predict lower levels of adolescent disclosure in grade 11, but this hypothesis was not supported. In addition, I expected that higher levels of adolescent depression would predict lower levels of parental solicitation and parental control, but these hypotheses also were not supported. Adolescent depression in grade 10 did not significantly predict parental solicitation or parental control in grade 11.

Question 3: Are parental knowledge, adolescent disclosure, parental solicitation and parental control related over time? I predicted that higher adolescent disclosure would be linked to

higher parental knowledge. Consistent with my expectations, higher adolescent disclosure in grade 10 predicted higher parental knowledge in grade 11. In contrast, I did not expect parental solicitation or parental control to predict parental knowledge. Consistent with my hypothesis, parental solicitation in grade 10 did not significantly predict parental knowledge in grade 11. In contrast to my expectations, however, higher levels of parental control in grade 10 predicted higher levels of parental knowledge in grade 11.

I expected that higher parental knowledge would be associated with higher adolescent disclosure. This hypothesis was supported, such that higher levels of parental knowledge in grade 10 predicted higher levels of adolescent disclosure in grade 11. I did not expect parental solicitation or parental control to be associated with adolescent disclosure, and these hypotheses also were supported.

The examination of the association between parents' level of knowledge in grade 10 and parental solicitation and control in grade 11 was exploratory. Results indicated that parental knowledge in grade 10 did not significantly predict parental solicitation or control in grade 11. Further, my examination of the predictive value of adolescent disclosure on parental solicitation and control was exploratory. Disclosure in grade 10 did not significantly predict parental solicitation or control in grade 11. Finally, I expected a reciprocal association between parental control and parental solicitation. Although I found that higher levels of parental control in grade 10 predicted higher levels of parental solicitation in grade 11, higher levels of parental solicitation in grade 10 did not significantly predict higher levels of parental control in grade 11 ($p = .05$).

Discussion

To uncover the role of perceived parenting practices in relation to adolescent depressive symptoms, my thesis extended the reinterpretation of parental monitoring by disentangling previously confounded parenting practices (i.e., parental solicitation and control) from parental knowledge, and

considering these parenting factors, as well as adolescent disclosure, in relation to adolescent depression. Importantly, the present thesis represents the first large-scale longitudinal test of bidirectional associations among the key parenting variables identified by Stattin and Kerr (2000) and adolescent depression, and offers researchers new insight into the role of both parents and adolescents (as perceived by the adolescent) in predicting reduced adolescent susceptibility to depression. Three central issues were considered. First, I examined whether parental knowledge, adolescent disclosure, parental solicitation and parental control predicted adolescent depression over time. Second, I examined whether adolescent depression predicted parental knowledge, adolescent disclosure, parental solicitation and parental control over time. Third, I examined whether parental knowledge, adolescent disclosure, parental solicitation and parental control were related over time. Key findings and implications are discussed below.

Question one: Do parental knowledge, adolescent disclosure, parental solicitation and parental control predict adolescent depression over time?

Consistent with my prediction, when parental knowledge was disentangled from adolescent disclosure and parental monitoring, higher levels of parental knowledge in grade 10 were associated with lower levels of adolescent depression in grade 11. The significant association found between greater parental knowledge and lower adolescent depression is consistent with findings from studies that have relied on measures of parental knowledge to assess “monitoring,” (see Frojd et al., 2007; Gil-Rivas et al., 2003; Jacobson & Crockett, 2000; Kim & Ge, 2000; Klein & Forehand, 2000; Sagrestano et al., 2003; Steinberg et al., 1991; Yu et al., 2006), as well as Kerr and Stattin’s (2000) finding that parental knowledge was associated with lower levels of depression in a sample of early adolescents. Parental knowledge may be associated with lower adolescent depression over time because knowledge provides parents with opportunities to intervene in adolescents’ activities (Dishion & McMahon 1998). For example, if parents are knowledgeable of their adolescent’s activities, and the

amount of time that they spend with peers, parents may be able to recognize changes in behaviors early on, and provide support and guidance when needed.

The extent to which parental knowledge reflects aspects of the parent-adolescent relationship also may help to explain the link between higher levels of knowledge and lower adolescent depression. For example, adolescents with good parental relationships report that their parents are more knowledgeable about their activities than adolescents with poor parental relationships (Fletcher et al., 2004; Salfia et al., 2009). Adolescents who have a warm parent-adolescent relationship most likely facilitate parental knowledge because they spend time with their parents, invite friends to their home, and engage in activities under the direct supervision of their parents (Kerr & Stattin, 2000; Willoughby & Hamza, in press). Parental knowledge has been described as part of a strong parent-adolescent relationship by researchers in the past (Steinberg et al., 1991). Moreover, parent-adolescent relationship quality has been widely implicated in the study of depression in both cross-sectional and longitudinal research (Burge & Hammen, 1991; Ge, Lorenz, Conger, Elder, & Simons, 1994; Greenberger & Chen, 1996; Patterson, 1982; Rapee, 1997), with several researchers reporting that strong relationships with parents buffer adolescents against negative moods (Gil-Rivas et al., 2003), help adolescents develop effective coping strategies (Muris et al., 2001), and navigate changes in adolescence (Greenberger & Chen, 1996). Therefore, if parental knowledge reflects a warm parent-adolescent relationship, my results would be consistent with research supporting associations between strong parent-adolescent ties and reduced adolescent susceptibility to depression.

In past research, adolescent disclosure, parental solicitation and parental control have been confounded with parental knowledge. In fact, parental knowledge was implicated in the study of depression by researchers attempting to assess parental monitoring efforts, who suggested that parents' level of knowledge was a measure of parental solicitation and control efforts (see discussion by Stattin & Kerr, 2000 and Crouter & Head, 2002). Adolescent disclosure and parental monitoring,

however, may be uniquely related to adolescent depression. In the present study, I anticipated that higher levels of disclosure would be linked to lower levels of depression because adolescent disclosure may provide parents with youth-initiated opportunities to provide support and guidance to struggling adolescents (Keijsers et al., 2010). Further, the act of disclosing to parents, and feeling that one has someone to confide in, may also reduce susceptibility to depression (Kerr & Stattin, 2000). Thus, I expected to replicate Kerr and Stattin's (2000) finding that higher levels of adolescent disclosure would be significantly associated with lower levels of adolescent depression. This expectation was not supported, however, as adolescent disclosure in grade 10 did not significantly predict adolescent depression in grade 11.

One explanation for the difference of findings in Kerr and Stattin's (2000) study and the present study, may be that Kerr and Stattin's measure of disclosure included items about hiding information from parents (e.g., Do you hide a lot from your parents about what you do during nights and weekends?). Finkenauer, Engels, and Meeus (2002) found that hiding information (or secrecy) was related to, but not the same as disclosure, and they suggested that disclosure and secrecy should be considered as two distinct constructs (see also Frijns, Keijsers, Branje, & Meeus, 2010). Secrecy may be more closely associated to depression than is disclosure about day-to-day activities (Frijns, et al, 2010; Finkenauer et al., 2002, 2005). For example, Frijns et al. found that when Stattin and Kerr's disclosure scale was separated into disclosure and secrecy items, disclosure was not directly related to reports of depression in a longitudinal sample of adolescents in Belgium. In contrast, secrecy was associated with adolescent-reported depressive symptoms. Frijns et al. (2010) note that secret keeping may have more of a negative effect on adolescent depression because concealing information is an effortful process, and inhibition may negatively impact the individual physically and psychologically. Further, concealing may lead to rumination, which also been linked to adolescent depressive symptoms (Abela & Hankin, 2009). Given Frijns et al.'s findings, it may be that Kerr and Stattin's

reported association between disclosure and depression may have been stronger than in the present study because their measure of disclosure included secrecy items.

A second reason I may not have found the expected association between adolescent disclosure and adolescent depression, as reported by researchers in the externalizing literature (Kerr & Stattin, 2003; Stattin & Kerr, 2000; Soenens et al., 2006), is because measures of adolescents' disclosures about activities and whereabouts may be more directly related to risk-taking and problem behavior involvement than adolescent depressive symptoms. More specifically, questions about adolescents' late night activities or peer groups appear more relevant to the study of problem behaviors, as these behaviors tend to occur during late night activities with peers (Fleming et al., 2008). In contrast, measures that assess adolescents' day-to-day activities may not capture the more relational and interpersonal aspects of disclosing (i.e., feeling listened to, having someone to confide in, sharing thoughts about moods and feelings) that one would expect to be more closely related to adolescent depression. It would be interesting for future research to examine whether adolescents' disclosures to parents about depressive thoughts or behaviors are associated with adolescent depression, and support contentions that disclosure would facilitate opportunities for parents to provide support and guidance (Frijns et al., 2010; Kerr & Stattin, 2000). For example, these disclosure measures could revolve around adolescent willingness to share information about feelings of self-worth and well-being, quality of interpersonal relations, appetite, or sleep disturbances. An example item may be: *"Do you usually tell your parents when you are feeling sad or down?"* or *"How often do you usually tell your parents when you don't feel like eating, or your appetite is poor?"*

A third explanation for why the present study may not have found an association between adolescent disclosure and depression, such as the significant association found in Kerr and Stattin (2000), is because Kerr and Stattin's study was not longitudinal, whereas the present study represents a comprehensive and robust test of associations among parental knowledge, adolescent disclosure,

parental solicitation, parental control and adolescent depression over time. My analyses were more conservative than those in Kerr and Stattin's study, given that I controlled for associations among all variables in grade 10, and treated all grade 10 variables as predictors of each grade 11 variable.

Further, when I analyzed a cross-sectional model of adolescents in just grade 10, similar to Kerr and Stattin, my findings were consistent with theirs, such that higher levels of adolescent disclosure in grade 10 predicted lower levels of adolescent depression in grade 10.

In addition to considering the role of parental knowledge and adolescent willingness to disclose, I also disentangled parental monitoring strategies (i.e., parental solicitation and control), and considered these active parental monitoring behaviors in relation to adolescent depression. Given adolescents' increasing autonomy needs during mid-adolescence (Kerr & Stattin, 2010; Keijsers et al., 2009), I expected that higher levels of parental solicitation in grade 10 would be associated with higher levels of depressive symptoms in grade 11. By adolescence, any information gains brought about by parental solicitation may be negated by adolescents' perceptions of these parenting practices as intrusive. For example, adolescents may feel that their personal autonomy is threatened and that their parents do not trust them when their parents ask them a lot of questions (Keijsers et al., 2010; Seligman, 1991). The results of the present study, however, did not support this hypothesis. Parental solicitation in grade 10 was not significantly related to adolescent depression in grade 11.

This finding is inconsistent with work by Stattin and Kerr (2010) and Willoughby and Hamza (in press) who found that higher levels of parental solicitation predicted higher levels of adolescent problem behavior over time. These researchers suggested that parental solicitation may be aversively related to problem behaviors because parental asking about adolescents' activities, whereabouts and friends, may conflict with adolescents' increasing autonomy needs. More specifically, if parental efforts are perceived as intrusive, youth may respond with increased problem behaviors to try to establish more independence from parents (Arnett, 1999; Keijsers et al., 2010). Parental solicitation

measures that assess asking about adolescents' daily activities and friends, however, may be more closely linked to problem behaviors than depressive symptoms because problem behaviors tend to involve peer activities outside the home. Future research should include a more diverse range of items in the parental solicitation measure, particularly items that assess parental asking about adolescents' well-being and mood. Further, parental solicitation may not have been associated with adolescent depression in the present study because the measure of parental solicitation did not capture the extent to which parental solicitation efforts are perceived as intrusive by the adolescent. In other words, perhaps parental solicitation is particularly related to depressive symptoms so far as this parenting practice is perceived as overly intrusive by the adolescent. More research is needed on adolescents' perceptions of their parents' solicitation efforts, in order to identify when solicitation might be perceived as "over-solicitation" and intrusive. For example youth could be asked both: "*How often do your parents ask you if you are feeling sad or upset?*" and "*How intrusive do you find it when your parents ask you if you are feeling sad or upset?*"

Finally, I examined associations between levels of parental control and adolescent depression. There has been research linking feelings of privacy invasion to perceived parental control (Hawk et al., 2008). By the time youth reach adolescence, any gains of parental control may be negated by adolescents feeling controlled by their parents (Kerr & Stattin, 2000; Kerr & Stattin, 2003). Therefore, I predicted that parental control in grade 10 would be associated with increased risk for depressive symptoms in grade 11. My findings, however, did not support this hypothesis. There was no significant evidence that parental control increased adolescent risk for depressive symptoms over a one-year period. Similar to parental solicitation, it may be that parental control is only aversively related to depression if it is perceived by adolescents as intrusive or interfering. In support of this hypothesis, Kerr and Stattin (2000) found that perceptions of *being controlled* by parents were associated with adolescent depressive symptoms, but perceptions of parental control behaviors were not linked to

adolescent depressive symptoms. This distinction may be important, as perhaps both forms of parental monitoring (i.e., parental solicitation and control) are only negatively associated with depressive symptoms if they are perceived by adolescents to be over-controlling or intrusive.

Moreover, adolescent perceptions of their parents being intrusive or over-controlling may depend on the type of information that parents try to monitor. For example, Kakihara and Tilton-Weaver (2009) found that parental monitoring of personal issues (e.g., parents disliking friends) was considered by adolescents as more intrusive than parental monitoring of prudential issues (e.g., parents disliking adolescents attending parties with alcohol). It may be that adolescents perceive parental inquiries about their overall well-being as less intrusive than parental inquiries about what they are doing, where they are going, and who they are with. To specifically explore this issue, researchers could compare parental monitoring related to adolescent depressive thoughts and behaviors to parental monitoring of adolescents' activities.

Question two: Does adolescent depression predict parental knowledge, adolescent disclosure, parental solicitation and parental solicitation over time?

To better understand the role of parental knowledge, adolescent disclosure and parental monitoring efforts in relation to adolescent depression, the present study examined reciprocal associations among parenting factors, adolescent disclosure and adolescent depression. Past research has been limited by use of cross-sectional designs (Stattin & Kerr, 2000; Kerr & Stattin, 2000), and thus the effects of adolescent depression on perceived parenting practices and adolescent disclosure over time is unclear. When parenting factors and adolescent disclosure were disentangled, as expected, higher adolescent depression in grade 10 was associated with lower parental knowledge in grade 11. This finding is consistent with researchers who have reported that adolescents involved in problem behaviors report lower levels of parental knowledge over time (Kerr et al., 2010). It may be that adolescents with more depressive symptoms spend less time in activities with parents, or that

parents are less knowledgeable as a result of poorer adolescent-parent relationship quality. Again, amount of time spent with parents has been linked to parents knowledge (Willoughby & Hamza, in press), and depression has been linked to reduced parent-adolescent relationship quality (Patterson, 1982; Rapee, 1997).

Although the effects of parental knowledge on adolescent depression, and the effects of depression on parental knowledge, were small given that path coefficients of .10 are typically seen as small effects in the social sciences (e.g., Cohen, 1988), these effects are not trivial. Small effect sizes were expected, given the use of a cross-lagged model with high stability coefficients between adjacent waves of data as well as controlling for concurrent associations among variables. Further, the development of depression is complex (Greenberger & Chen, 1996), so it is not surprising that the effects of perceived parenting practices on adolescent depression were small. My findings are comparable to other researchers studying similar parenting factors (see Fletcher et al., 2004; Soenens et al., 2006), and the amount of variance accounted for in parental knowledge and adolescent depression are similar to estimates from Kerr and Stattin (2000), and offer evidence that parental knowledge is reciprocally related to adolescent depression.

The association between parental knowledge and adolescent depression may be stronger among interpersonal dependent personality types, that place greater emphasis on interpersonal relations with others (Abela & Hankin, 2008), or in cultures where a lot of importance is placed on family context, and strong relations with parents are highly valued (Gil-Rivas et al., 2003). Further research is needed to explore these hypotheses. An interesting avenue for future research also could be to explore the moderating effects of relationship quality on the association between parental knowledge and depression, as associations between parenting factors and adolescent depression may be stronger among adolescents with higher parent-adolescent relationship quality (see Keijsers et al., 2009).

In contrast to parental knowledge, and contrary to my prediction, adolescent depression in grade 10 was not associated with adolescent disclosure in grade 11. As withdrawal is a characteristic of depression (DSM-IV-TR, 2000), I expected that adolescents with higher levels of depressive symptoms may disclose less to their parents about their day-to-day activities and whereabouts. However, the lack of a significant finding is consistent with recent work by Frijns et al. (2010) who found that adolescent depression did not predict adolescent willingness to disclose over a three-year period. It may be that adolescents are not less willing to disclose to parents when feeling depressed because they expect parents to respond more sympathetically to depression than risk-taking or delinquency (Laird & Marrero, 2010).

On the basis of research showing that parents may reduce parental solicitation efforts in response to problem behaviors (Kerr et al., 2010), or when adolescents seem closed or withdrawn (Kerr & Stattin, 2003), I predicted that higher adolescent depression in grade 10 would be associated with lower parental solicitation in grade 11, but this hypothesis was not supported. Perhaps whether parents solicit information depends to a large extent on attributions parents make about adolescents' behaviors. Moderate forms of risk-taking are thought to be normative during adolescence, and serve the function of allowing youth to establish some independence from parents (Arnett, 1999; Keijsers et al., 2009); therefore, parents may regard some risky behaviors as normative and reduce parental solicitation efforts to avoid parent-adolescent conflict (Kerr & Stattin, 2003). In contrast, adolescent depression is regarded as a form of maladjustment (Kerr & Stattin, 2000) and if parents are concerned that adolescents are experiencing depressive thoughts or behaviors, they may maintain parental solicitation efforts. The caveat, however, is that if parents perceive adolescents' distancing behaviors as a bid for increased autonomy, parents may also reduce solicitation efforts to avoid parent-adolescent conflict. To address this issue, measures of domain-specific parental solicitation efforts, again, may be important. For example, including a measure that specifically taps the extent to which

parents ask adolescents about their subjective well-being may provide a better indication than if parents are reducing solicitation about activities, but maintaining their frequency of questions about adolescents' depressive thoughts and behaviors.

I also predicted that adolescent depression would predict lower levels of parental control. Similar to my findings with parental solicitation, this hypothesis was not supported. Adolescent depression in grade 10 was not related to parental control in grade 11, suggesting that parents did not control adolescents more, or less, when adolescents reported higher levels of depression. Overall, with respect to the findings that adolescent disclosure, parental solicitation and parental control were not significantly related to adolescent depression, is important to note that the inclusion of adolescents in grades 10 and 11 may have played a factor. Recall that Kerr and Stattin's (2000) study consisted of adolescents at one age period, age 13. It may be that associations among parenting factors, adolescent disclosure and depression are stronger in early adolescence. Parents may influence adolescents' susceptibility to depression less in later development, as adolescents become more autonomous and peers become increasingly important. It should also be noted that although the expected associations were not identified, this does not mean that adolescent disclosure, parental solicitation and parental control are unrelated to adolescent depressive symptoms. My results may have been a product of the measures used to test these variables, and future research is needed to validate these findings.

Question three: Are parental knowledge, adolescent disclosure, parental control and parental solicitation related over time?

To elucidate associations among parental knowledge, adolescent disclosure and parental monitoring behaviors, my final question sought to examine associations among these parenting factors and adolescent disclosure over time. In line with recent research I found that adolescent disclosure in grade 10 was associated with higher parental knowledge in grade 11 (Kerr & Stattin, 2000; Kerr & Stattin, 2003; Kerr et al., 2010; Laird et al., 2003; Salafia et al., 2009; Soenens et al., 2006;

Willoughby & Hamza, in press). The anticipated association found between disclosure and knowledge supports researchers' claims that adolescents' willingness to disclose information increases parents' knowledge of adolescents' activities and whereabouts.

Although Stattin and Kerr (2000) have reported little evidence of a link between parental solicitation and parental knowledge, or between parental control and parental knowledge, in the present study I found that parental control in grade 10 was associated with higher levels of parental knowledge in grade 11. This finding is consistent with that of Soenens et al. (2006), who found an effect of parental control on parental knowledge when path analysis was used to test associations among parental solicitation, control and parental knowledge simultaneously. This finding is encouraging, because it suggests that parental supervision and limit-setting may provide parents with opportunities to be knowledgeable about their adolescents' activities.

Given the finding that parental control and adolescent disclosure in grade 10 predicted parental knowledge in grade 11, and that parental knowledge in grade 10 predicted adolescent depression in grade 11, it may be that high levels of adolescent disclosure and parental control are indirectly associated with lower levels of adolescent depression through parental knowledge. In other words, adolescent disclosure about daily activities, as well as parental supervision and limit-setting, may ensure parents are knowledgeable of their adolescents' activities, and in turn, this knowledge may reduce adolescent susceptibility to depression. Multi-wave data could be used in the future to specifically address this hypothesis.

When I examined the predictors of adolescent disclosure, I found that consistent with my hypotheses, parental knowledge was the only predictor of adolescent willingness to disclose. Higher levels of parental knowledge in grade 10 were associated with higher levels of adolescent disclosure in grade 11. It is not surprising that adolescents who share information with their parents about their activities should report that parents are more knowledgeable of these activities. It is less clear,

however, how knowledge might facilitate subsequent disclosure. Part of the reason parental knowledge may predict adolescent willingness to disclose may be because knowledgeable parents have responded well to adolescent disclosures in the past, and as a result, adolescents are more likely to disclose again in the future. Further, parental knowledge and adolescent disclosure seem to be reciprocally linked, and it may be because both are characteristics of a strong parent-adolescent relationship. Recall that parental warmth and responsiveness are associated with higher levels of parental knowledge (Fletcher et al., 2004; Salafia et al., 2009) and that high parental knowledge may reflect, in part, a strong parent-adolescent relationship (Steinberg et al. 1991). A strong parent-adolescent relationship is likely to facilitate disclosure (Salafia et al., 2009), and in turn, increased disclosure is likely to produce better relations with parents, as openness with parents has been shown to facilitate relationship quality (Collins & Miller, 1994).

Consistent with previous research, parental solicitation and control efforts were not associated with adolescent willingness to disclose (Kerr et al., 2010). It may be that parental asking in childhood and pre-adolescence establishes open channels of communication early in development, but by adolescence, youth must be willing to disclose on their own accord (Kerr & Stattin, 2000). Again, parental solicitation and control may be perceived as intrusive as adolescents try establish independence and autonomy from parents (Kerr & Stattin, 2000; Kerr & Stattin, 2003).

The examination of the predictors of parental solicitation and control were exploratory. The findings indicated that parental knowledge in grade 10 was not significantly related to parental solicitation and parental control in grade 11. In the past, researchers have posited that parental knowledge is associated with lower levels of depression because knowledge offers parents greater opportunities to intervene in adolescents activities (i.e., solicit and control); the findings in the present study, however, do not offer support for this hypothesis. Adolescent willingness to disclose was also not significantly related to parents' solicitation and control efforts, suggesting that adolescent

disclosure may not influence whether parents solicit or control adolescents' activities. Parental control was significantly associated with parental solicitation, such that higher control predicted increased parental solicitation over time, while parental solicitation predicted increased parental control over time at $p = .05$. This finding is not surprising, as both behaviors are conceptualized as aspects of parental monitoring. In a study by Willoughby and Hamza (in press), parental solicitation and control were found to be reciprocally related across the high school years.

Limitations of the present study:

My thesis was specifically focused on an examination of the relations among the parenting and adolescent variables outlined in the Stattin and Kerr (2000) paper, and I do not claim to have provided an exhaustive investigation of the parent-adolescent effects on adolescent depression. There may be other variables that play a critical role (e.g., parent adolescent-relationship quality). The present study is also correlational in nature, and therefore causation cannot be established. By including two time points and assessing variables at each time point in a rigorous design, however, evidence for the nature and possible directionality of effects was provided.

Another limitation of the present study was that reliance on a single source of information (adolescent reports) may have introduced positive bias to the degree of inter-relations among the study variables. The study would have benefited from corroboration by other sources, particularly separate assessments of each behavior from the participants' mothers and fathers. In the present study, the parenting measures assessed adolescents' perceptions of how often their parents engage in these behaviors rather than the parents' actual behaviors. It is important to note, however, that Soenens et al. (2006), and Kerr and Stattin (2000, Kerr et al., 2010) found that adolescent and parent reports of similar constructs to those measured in the present study yielded similar findings. Similarly, Keijsers et al. (2010) found that associations among parenting factors and adolescent problem behaviors held across multiple informants, including adolescents, mothers, and fathers, suggesting that patterns of

associations based on adolescent perceptions of parenting behaviors and actual parenting behaviors are generally consistent. Moreover, as Fletcher et al. (2004) argued, it is the adolescents' *perceptions* that may be most critical when examining potential predictors of their behavior (also see Steinberg, 1991).

Another limitation of the present study is that the parental solicitation measure included a response that was related to disclosure that I recoded as missing to ensure that there was no overlap with the disclosure measure. This recoding could have introduced some bias to the results, but all analyses were rerun excluding participants who indicated that they always told their parents about their activities without their parents asking, and the results did not differ.

Finally, although the present sample included the majority of enrolled students from a school district, findings may not generalize to other geographic regions, including those with differing ethnic and/or demographic mixes. More specifically, the results of the present study may be specific to Western cultures, as in many Asian countries, strict parenting and high levels of monitoring are perceived as positive aspects of parenting (see Kim 2005) and have been associated with higher levels of knowledge. For example, in a study by Shek (2008) parental monitoring was more strongly associated with parental knowledge than adolescent disclosure, suggesting disclosure may be a more important predictor of parents' level of knowledge in Western samples. Also, given the attrition rate (24%), the present sample may not be a representative sample of youth in grades 10 and 11, or the larger population.

Conclusions and Directions for Future Research

The present study represents the first longitudinal examination of the reciprocal effects among key parenting variables and adolescent disclosure in the context of adolescent depression. Parental knowledge, adolescent disclosure, parental solicitation and parental control were disentangled, and associations among these variables and adolescent depression were considered. Importantly, when

parenting factors and adolescent disclosure were disentangled, perceived parental knowledge emerged as the only predictor of adolescent depression over time, and adolescent depression predicted decreased parental knowledge over time. Both adolescent willingness to disclose and perceived parental control predicted parents' level of knowledge.

In past research, parental knowledge was considered to be important to the study of depression because parental knowledge was thought to be a measure of parents' monitoring efforts. The findings of the present thesis, however, suggest that parental monitoring efforts (i.e., parental solicitation and control) are not uniquely related to adolescent depression when parental knowledge and adolescent willingness to disclose are considered. These findings are important for practice, because the results of the present study call into question past researchers' claims that intervention and prevention programs aimed at reducing adolescents' susceptibility to depression should incorporate teaching parents of depressed adolescents effective parental monitoring and supervision strategies (Frojd et al., 2007; Kim & Ge, 2000; Sagrestano et al., 2003). Researchers may want to be cautious about telling parents to monitor and track adolescents' activities to reduce depression, as I found no significant association between parental monitoring efforts and adolescent depressive symptoms. Instead, researchers may want to shift the focus of research efforts to the study of parental knowledge.

Given that parental knowledge was the only parenting factor associated with reduced risk for adolescent depression over time in the present study, it would be advantageous for researchers to further examine the processes through which parents obtain knowledge. My findings suggest that both parents and adolescents may contribute to parents' level of knowledge. More specifically, I found that adolescent willingness to disclose to parents as well as adolescents' perceptions of parental limit-setting were associated with higher parental knowledge, as viewed by the adolescents, over time. There may be other important parenting factors that contribute to parents' level of knowledge (e.g., parent-adolescent relationship quality) that could be considered in future research. Another important

issue for future research to address is to establish the mechanism through which parental knowledge predicts reduced adolescent susceptibility to depression. It may be that knowledge provides parents opportunities to provide support and guidance to adolescents when needed, but this hypothesis must be tested. At present, the results of this study offer evidence that both parent and adolescent contributions to development are important, and highlight the role of perceived parental knowledge in predicting reduced adolescent susceptibility to depression.

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Table 1.*Table of Hypotheses*

Question	Hypotheses:
Question 1:	<p>Higher parental knowledge → lower adolescent depression</p> <p>Higher adolescent disclosure → lower adolescent depression</p> <p>Higher parental solicitation → higher adolescent depression</p> <p>Higher parental control → higher adolescent depression</p>
Question 2:	<p>Higher adolescent depression → lower parental knowledge</p> <p>Higher adolescent depression → lower adolescent disclosure</p> <p>Higher adolescent depression → lower parental solicitation</p> <p>Higher adolescent depression → lower parental control</p>
Question 3:	<p>Higher adolescent disclosure → higher parental knowledge</p> <p>Parental solicitation ≠ parental knowledge</p> <p>Parental control ≠ parental knowledge</p> <p>Higher parental knowledge → higher adolescent disclosure</p> <p>Parental solicitation ≠ adolescent disclosure</p> <p>Parental control ≠ adolescent disclosure</p> <p>Exploratory: Parental knowledge and parental solicitation</p> <p>Exploratory: Parental knowledge and parental control</p> <p>Exploratory: Adolescent disclosure and parental solicitation</p> <p>Exploratory: Adolescent disclosure and parental control</p> <p>Higher parental control → higher parental solicitation</p> <p>Higher parental solicitation → higher parental control</p>

Table 2.*Variable means and standard deviations*

Variable	<u>Grade 10</u>		<u>Grade 11</u>		range
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Gender	51.3% female				
Age	15.16	0.45	16.32	0.50	
Parental Education (SES)	3.29	1.06			1-6
Parental Knowledge	3.13	0.64	3.08	0.69	1-4
Adolescent Disclosure	2.50	0.73	2.52	0.77	1-4
Parental Solicitation	2.12	0.50	2.16	0.53	1-3
Parental Control	2.88	0.74	2.73	0.77	1-4
Adolescent Depression	1.96	0.66	2.06	0.69	1-5

Note. N = 1995. Higher scores for variables indicated more parental knowledge, more parental solicitation, more parental control, more adolescent disclosure, and more adolescent depression.

Table 3.*Correlations among variables*

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
<u>Grade 10</u>													
1. Gender	-	-.04	-.01	.08*	.19*	.14*	.22*	.17*	.14*	.19*	.08*	.08*	.05*
2. SES		-	.01	.08*	.07*	.10*	.07*	.09*	.05*	.07*	.09*	.09*	.10*
3. Cohort			-	.04	.01	-.01	.00	.02	.03	.00	-.01	.01	-.01
4. Knowledge				-	.48*	.34*	.36*	-.28*	.46*	.34*	.21*	.22*	-.19*
5. Disclosure					-	.30*	.40*	-.11*	.34*	.42*	.21*	.22*	-.13*
6. Solicitation						-	.24*	-.07*	.17*	.17*	.38*	.45*	-.07*
7. Control							-	-.07*	.25*	.21*	.30*	.40*	-.08*
8. Depression								-	-.18*	-.11*	-.09*	-.05*	.44*
<u>Grade 11</u>													
9. Knowledge									-	.45*	.31*	.31*	-.20*
10. Disclose										-	.29*	.40*	-.11*
11. Solicitation											-	.45*	-.02
12. Control												-	-.03
13. Depression													-

Note: N = 1995, *p < .05

Table 4.

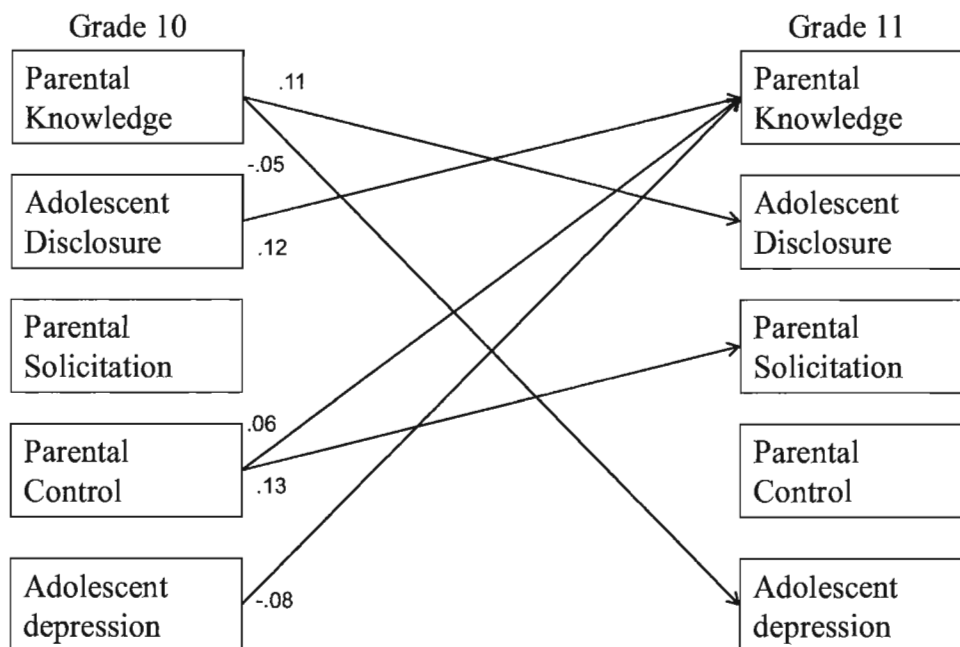
Standardized path coefficients, standard errors, and p-values for paths in model

Variable	Grade 11														
	<u>Knowledge</u>			<u>Disclosure</u>			<u>Solicitation</u>			<u>Control</u>			<u>Depression</u>		
	B	SE	p	B	SE	p	B	SE	p	B	SE	p	B	SE	p
<u>Grade 10</u>															
Gender	.097	.020	.002	.121	.022	.003	.008	.023	.704	.081	.022	.002	.008	.022	.697
SES	.005	.020	.763	.041	.021	.036	.043	.021	.051	.056	.021	.003	-.052	.021	.013
Cohort	.015	.019	.427	-.006	.019	.790	-.006	.022	.781	.010	.019	.606	-.014	.020	.511
Knowledge	.360	.028	.003	.108	.027	.002	.029	.028	.331	.052	.028	.076	-.054	.029	.047
Disclosure	.117	.023	.002	.329	.024	.002	.048	.026	.081	.028	.025	.265	-.028	.025	.265
Solicitation	-.038	.025	.122	.012	.025	.711	.287	.025	.002	.050	.025	.050	-.005	.025	.777
Control	.060	.024	.016	-.002	.026	.926	.131	.025	.002	.325	.025	.002	-.014	.024	.563
Depression	-.078	.024	.001	-.035	.022	.122	-.044	.024	.052	-.014	.024	.528	.422	.024	.004
R ²	.24			.20			.17			.18			.21		

Note. N = 1995.

Figure 1. Model of associations among parent and adolescent variables

Significant paths



Note. Solid lines indicate $p < 0.05$. All stability paths within variables across grades were significant but are not shown. See Table 4 for all path coefficients and standard errors.

APPENDIX A – MISSING DATA

Percentages of missing data

Variable	Grade 10	Grade 11
Parental Knowledge	16.6	8.5
Parental Solicitation	25.7	19.9
Parental Control	22.9	17.2
Adolescent Disclosure	21.5	16.9
Adolescent Depression	9.9	7.0

APPENDIX B – QUESTIONNAIRES

Demographics

1. How old are you? ☐ 13 ☐ 14 ☐ 15 ☐ 16 ☐ 17 ☐ 18 or over
2. Are you male or female? ☐ Male ☐ Female
3. What is the highest level of education your MOTHER/STEPMOTHER (female guardian) completed?
 - ☐ Did not finish high school
 - ☐ Finished high school
 - ☐ Some college, university, or apprenticeship program
 - ☐ Completed a college/apprenticeship diploma (e.g., electrician) and/or technical diploma (i.e. graphic design, hair dressing)
 - ☐ Completed a university undergraduate degree
 - ☐ Completed a professional degree (e.g., masters, PhD, medical doctor, lawyer)
 - ☐ Still going to school
 - ☐ Don't know
- 4.. What is the highest level of education your FATHER/stepfather (male guardian) completed?
 - ☐ Did not finish high school
 - ☐ Finished high school
 - ☐ Some college, university, or apprenticeship program
 - ☐ Completed a college/apprenticeship diploma (e.g., electrician) and/or technical diploma (i.e. graphic design, hair dressing)
 - ☐ Completed a university undergraduate degree
 - ☐ Completed a professional degree (e.g., masters, PhD, medical doctor, lawyer)
 - ☐ Still going to school
 - ☐ Don't know

Parental Knowledge

PART E

Fill in the circle that best describes you.

How much do your parents/guardians REALLY know about....

	THEY ALWAYS KNOW	THEY USUALLY KNOW	THEY SOMETIMES KNOW	THEY NEVER KNOW
A. where you go at night?..... <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
B. what you do with your free time?..... <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
C. who your friends are?..... <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
D. where you are most afternoons after school?..... <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
E. How much time you spend on the computer or playing video games?... <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>

Adolescent Disclosure

PART A

How often do you do the following...

- | | ALMOST ALWAYS
OR ALWAYS | OFTEN | SOMETIMES | ALMOST NEVER
OR NEVER |
|--|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| 1. Do you spontaneously tell your parents about your friend (which friends you hang out with and how they think and feel about various things)?..... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. How often do you usually want to tell your parents about school (how each subject is going; your relationships with teachers)?..... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. Do you like to tell your parents about what you did and where you went during the evening?..... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Parental Solicitation

PART D

Fill in the circle that best describes you.

Do your parents/guardians ASK you....

THEY OFTEN ASK THEY SOMETIMES ASK THEY NEVER ASK I TELL THEM WITHOUT THEIR ASKING

- | | | | | | |
|----|---|-----------------------|-----------------------|-----------------------|-----------------------|
| A. | where you go at night? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| B. | what you do with your free time? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| C. | who your friends are? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| D. | where you are most afternoons after school? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| E. | how much time you spend on the computer or playing video games? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Parental Control

PART B How often do you do the following...

- | | | | | | |
|----|--|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. | Do you need to have your parents' permission to stay out late on a weekday evening? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. | Do you need to ask your parents before you can decide with your friends what you will do on a Friday or Saturday evening? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. | If you have been out very late one night, do your parents require that you explain what you did and whom you were with? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. | Do your parents always require that you tell them where you are at night, who you are with, and what you do together? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5. | Before you go out on a Friday or Saturday night, do your parents require you to tell them where you are going and with whom? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Adolescent Depression

PART C

Fill in the answer that best describes how often you felt or behaved this way DURING THE PAST TWO WEEKS.

- | | NONE OF THE TIME (LESS THAN 1 DAY) | RARELY (1-2 DAYS) | SOME OF THE TIME (3-5 DAYS) | OCCASIONALLY (6-9 DAYS) | MOST OF THE TIME (10-14 DAYS) |
|---|------------------------------------|-----------------------|-----------------------------|-------------------------|-------------------------------|
| 1. I was happy..... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. I did not feel like eating; my appetite was poor..... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. I felt that I could not stop feeling sad, even with help from my family and friends..... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. I felt that I was just as good as other people..... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5. I had trouble keeping my mind on what I was doing..... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 6. I felt depressed..... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 7. I felt that everything I did was an extra effort..... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 8. I felt hopeful about the future..... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 9. I thought my life had been a failure..... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 10. I felt fearful..... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 11. My sleep was restless..... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 12. I was bothered by things that usually don't bother me..... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 13. I talked less than usual..... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 14. I felt lonely..... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 15. People were unfriendly..... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 16. I felt like doing nothing..... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 17. I had crying spells..... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 18. I felt sad..... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 19. I felt that people disliked me..... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 20. I enjoyed life..... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Appendix C – ETHICS FORM

Brock University

Senate Research Ethics Board
3205/4315, Room C315

Extensions

FROM: David Butz, Chair
Senate Research Ethics Board (REB)

TO: Teena Willoughby, Child and Youth Studies

FILE: 00-116, WILLOUGHBY

The Brock University Research Ethics Board has reviewed the revised research proposal:

“Enhancement of youth resiliency and reduction of
harmful behaviours leading to healthy lifestyle choices”

The Research Ethics Board finds that your revised proposal conforms to the Brock University guidelines set out for ethical research.

*** Accepted as clarified**

Please note: Any Changes or Modifications to this approved research must be reviewed and approved by the committee. If so, please complete form #5 - *Request for Ethics Clearance of a Revision or Modification to an Ongoing application for Ethics Review of Research with Human Participants* and submit it to the Chair of the Research Ethics Board. You can download this form from the Office of Research Services or visit the web site:

<http://www.BrockU.CA/researchservices/mainethicsformpage.html>

DB/dvo



Youth Lifestyle Choices Community University Research Alliance

The YLC-CURA is a long-term strategic partnership between a number of Brock University faculty & Niagara Region Community agencies to better understand resilience and youth lifestyle choices.

Member Organizations

- ◆ Adolescent's Family Support Services of Niagara
- ◆ Boys and Girls Club of Niagara
- ◆ Brock University
- ◆ Business Education Council of Niagara
- ◆ Canadian Red Cross
- ◆ Centre for Addiction & Mental Health
- ◆ City of St. Catharines
- ◆ City of Welland
- ◆ Centre De Sante Communautaire
- ◆ Contact Niagara
- ◆ District School Board of Niagara
- ◆ Early Childhood Community Development Centre
- ◆ Family & Children's Services/Family Counselling Centre
- ◆ GLBTQ Outreach Project of Niagara
- ◆ Institute for Enterprise Education
- ◆ Lighthouse Niagara
- ◆ Ministry of Corrections Probation and Parole Services
- ◆ Niagara Alcohol & Drug Assessment Service
- ◆ Niagara Catholic District School Board
- ◆ Niagara Centre for Youth Care
- ◆ Niagara District Health Council
- ◆ Niagara Regional Police
- ◆ Operation Springboard
- ◆ Port-Colborne/ Wainfleet Healthy Lifestyles Coalition
- ◆ Regional Municipality of Niagara-Community Services Children's Services Division
- ◆ Regional Niagara Public Health Department
- ◆ St. Catharines Chamber of Commerce
- ◆ St. Catharines Public Library
- ◆ The Raft
- ◆ YMCA
- ◆ YWCA of St. Catharines

The YLC-CURA is a core partner on a Health Canada Centre of Excellence for Youth Engagement Contact Information

YLC-CURA
Brock University
St. Catharines, ON
L2S 3A1
Phone: (905) 688-5550

Ext. 4614
Fax: (905) 688-3344

Email: cura@www.brocku.ca

Web: www.ylc-cura.ca

YLC-CURA is a

Social Sciences & Humanities
Research Council of Canada
funded project.

Appendix D – PARENT INFORMATION LETTER

Parent/Guardian:

Since January 2000, the Niagara Catholic District School Board has been an active member of the Youth Lifestyle Choices – Community University Research Alliance (YLC-CURA), which consists of 31 community agencies and 15 faculty at Brock University. Our goal is to better understand youth lifestyle choices, both those involving risk and those that are positive. In order to do this, we are following youth in Niagara as they continue through adolescence. We believe that if we can gain an understanding of these choices and of the protective factors that youth will need in life, we can begin to develop more effective ways to enhance their coping skills and enable youth to make positive lifestyle choices.

In 2003 and 2004, YLC-CURA surveyed over 7,000 youth in the Niagara Region, and may have included your child in the study. The information gathered has been published in many reports, and used by multiple community agencies in Niagara to improve their programming and to apply for more government funding. This information is also being used to enhance curriculum with relevant statistics that reflect Niagara youth lifestyles. With continued research, we will be in a unique position to explore the pathways students take as they progress through adolescence. We are writing to ask your permission for your child to participate in completing the survey again. The survey will take approximately 45 minutes to complete. Completing the survey again is critical in order to examine how youth change in their perceptions as they go through adolescence. Your child will be asked to answer a number of questions about lifestyle choices and experiences (e.g., questions involving computer use, aggression, victimization, school culture, substance use, daily hassles, family lifestyle, depression, anxiety, friendship quality, etc.). A copy of the questionnaire is available in the school office. This information will allow us to understand how youth make decisions about lifestyle choices and how transition periods, such as entry to the secondary school system, affect those decisions.

This project has received ethics clearance from the Brock University Committee on Research with Human Participants, and the Niagara Catholic District School Board, and is funded by the Social Sciences and Humanities Research Council of Canada. The project will be implemented during the Teacher Advisory Group (TAG). The content of the questions address issues found in provincial curriculum. The questionnaire acts as an educational and discussion tool for teachers, students, and parents.

All of the information that we record will be kept completely confidential. Only group data will be reported. This group data may eventually be housed in an archive, again with no identifying information. You and your child will be free to withdraw your participation at any time without penalty. More specifically, non-participation will not affect your child's grades in any way. Students who do not wish to complete the survey will complete an alternative educational task.

We hope that you and your child will be willing to participate in our project and we look forward to sharing our findings with you at the end of this project. We have attached a consent form for you to let us know if you wish your child to participate in this project. **ONLY** return the form if you do **NOT** wish your child to participate. If you do **NOT** want your child to participate please sign and return the attached form to the Student Services Department in your child's school **by April 7, 2006**. We also will ask your child to provide assent to participating in the study.

If you have any questions or concerns about your participation in the study, you may contact Michael Busseri at 905-688-5550, ext. 4798 (or by email at cura@www.brocku.ca), or the Research Ethics Officer at 905-688-5550, Ext. 3035. For more information, you can access our website www.brocku.ca/cura. Thank you for considering our project.

APPENDIX E – PARENT CONSENT FORM

Youth Lifestyle Choices: Community University Research Alliance BROCK UNIVERSITY - YOUTH RESILIENCE QUESTIONNAIRE

I understand that this research study in which I have agreed to allow my child to participate is designed to better understand factors that foster healthy lifestyle choices in adolescence. I understand that this study also will identify where gaps may exist in services available to youth in the Niagara Region, and as such, will be of benefit to my child. This study is being conducted by the YLC-CURA (Professor Willoughby, email address twilloug@brocku.ca, 905-688-5550, ext. 4281).

- I understand that my child will be asked to answer a number of questions about lifestyle choices and experiences (e.g., questions involving computer use, aggression, victimization, school culture, substance use, daily hassles, family lifestyle, anxiety, friendship quality, etc.).
- I understand that a copy of the questionnaire is available for inspection in the school office. The questionnaire will take approximately 45 minutes to complete. Students who do not have parental permission or who choose not to complete the questionnaire will have 45 minutes to complete an alternative educational activity.
- I understand that my child's questionnaire may be matched to previous year's questionnaires as part of this long-term study.
- I understand that my child's participation in this study is voluntary and that my child or I may withdraw from the study at any time and for any reason without penalty.
- I understand that there is no obligation for my child to answer any question in the questionnaire that they consider invasive or inappropriate.
- I understand that there are very minimal potential risks to my child to participate in this study. Based on the YLC-CURA's experience with youth filling in similar surveys in 2001, 2003, and 2004, I understand that my child is not anticipated to experience any negative feelings about the survey. In case he or she has questions or concerns, however, I understand that the YLC-CURA research staff will be available in the classroom to answer questions and will provide all students with a bookmark that includes phone numbers of youth-serving agencies in Niagara. I understand that all data will be kept completely confidential, except in the rare instance where a child indicates that they may be in danger of being abused.
- I understand that only group data will be reported and no information about individual responses will ever be given to schools, teachers, or anyone else. I understand that I will not have access to my child's responses. The data, with identifying information removed, will be retained indefinitely and will be securely stored in a locked office in the research laboratory. Group data only may be published, presented at conferences, used to evaluate programs, or used for secondary data analyses by other researchers. Feedback and information about the results of this study will be posted on the YLC-CURA website (www.brocku.ca/cura).
- I understand that my child will be asked if they would like to participate again in the study several years after they graduate so that we can understand more about the ways in which young people change and stay the same as they get older. I understand that my child will be asked if they would be willing to provide their email address, if applicable, so that we can contact them later. I understand that their email address will be kept strictly confidential in a locked cabinet in our lab - no researcher other than the primary researcher will have access to that information. I understand my child's email address only will be used to initiate contact but that my child will have to give permission before being asked to answer any survey questions.
- This project has been reviewed by, and received ethics clearance through, the Office of Research Ethics Board. (File #00-116)

Please return this form to the Student Services Department of your child's school by April 7, 2006, ONLY if you do NOT want your child to participate.

Child's name (first and last) _____

Child's Birthdate _____

Parent/Guardian Signature _____

Date _____

If you have any questions or concerns about your participation in the study, you may contact Michael Busseri at 905-688-5550, ext. 4798 (or by email at cura@www.brocku.ca), or the Research Ethics Officer at 905-688-5550, Ext. 3035. We also have a website, www.brocku.ca/cura that you can access for more information. Please keep a copy of this form for your records.

APPENDIX F - PARTICIPANT ASSENT FORM

Youth Lifestyle Choices - Community University Research Alliance (YLC-CURA) Brock University - Youth Resilience Questionnaire

I understand that I am agreeing to participate in this study which will involve answering a series of questions concerning lifestyle choices and experiences. I understand that this study also will identify where gaps may exist in services available to youth in the Niagara Region, and as such, will be of benefit to me. This study is being conducted by the YLC-CURA (email at cura@www.brocku.ca).

- I understand that I will be asked to answer a number of questions about lifestyle choices and experiences (e.g., questions involving computer use, aggression, victimization, school culture, substance use, daily hassles, family lifestyle, anxiety, friendship quality, etc.).
- I understand that my participation in this study is voluntary and that I may withdraw from the study at any time and for any reason without penalty. I understand that the questionnaire will take about 45 minutes to complete. Students who choose not to complete the questionnaire will have 45 minutes to complete an alternative educational activity.
- I understand that my responses to the questionnaire may be matched to previous year's questionnaires as part of this long-term study.
- I understand that there is no obligation to answer any question in the questionnaire that I consider invasive or inappropriate.
- I understand that my parents or guardians have been informed about the study and have consented to my participation, although this does not mean that I must participate.
- I understand that only the YLC-CURA researchers will have access to the data. I understand that all data will be kept confidential except in the case where I provide information that indicates that I am in danger of being abused.
- I understand that there are very minimal potential risks to my participation in this study. Based on the YLC-CURA's experience with youth filling in similar surveys in 2001, 2003, and 2004, I understand that I am not expected to experience any negative feelings about the survey. In case I have questions or concerns, however, I understand that the YLC-CURA research staff will be available in the classroom to answer questions and will provide all students with a bookmark that includes phone numbers of youth-serving agencies in the Niagara Region.
- I understand that only group data will be reported and no information about individual responses will ever be given to schools, teachers, or anyone else. The data, with identifying information removed, will be retained indefinitely and will be securely stored in a locked office in the research laboratory. Group data only may be published, presented at conferences, used to evaluate programs, or used for secondary data analyses by other researchers. Feedback and information about the results of this study will be posted on the YLC-CURA website (www.brocku.ca/cura) in September 2006.
- One of the most valuable parts of our research is that we are able to describe the ways in which young people change and stay the same as they get older. We know that the time between high school and young adulthood is a very unique time of life and we think that it is important to find out more about it. In order to see how people develop, we need to have future information from the same people who gave us information during high school - thus, no one can take your place in this study! We would like to ask you about your experiences again after you graduate, as well as provide you with ongoing feedback about the results of our study.
- If you would be willing for us to contact you in a year or two, please provide us with your email address _____.

- Email addresses only will be used to send you information about the results of our study and to ask whether you would be interested in being part of our study in the future. Your email address will be kept strictly confidential in a locked cabinet in our lab and no researcher other than the primary researcher will have access to that information.

Participant Signature _____ Date _____

This study has been reviewed and approved by the Brock Research Ethics Board (File # 00-116). If you have any questions or concerns about your participation in this study, you may contact Michael Busseri at 905-688-5550, ext. 4798 (or by email at cura@www.brocku.ca), or the Research Ethics Officer at 905-688-5550, Ext. 3035. We also have a website, www.brocku.ca/cura, that you can access for more information. Please keep a copy of this form for your records.

Teena Willoughby, Ph.D.

Professor, twilloug@brocku.ca

905-688-5550, ext. 4281